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SYDNEY OBSERVATORY.

DOUBLE STAR RESULTS, 1871-1881.

600045731Q

18428 d.

RESULTS

OF

DOUBLE STAR MEASURES

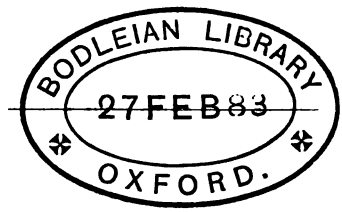
MADE AT THE

SYDNEY OBSERVATORY, NEW SOUTH WALES,

1871 to 1881,

UNDER THE DIRECTION OF

H. C. RUSSELL, B.A., F.R.A.S.,
GOVERNMENT ASTRONOMER FOR NEW SOUTH WALES.



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1882.

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New Double Stars, and Measures of some of those found by Sir John Herschel.

By H. C. Russell, B.A., F.R.A.S., Government Astronomer.

[*Read before the Royal Society of N.S. W., 7 September, 1881.*]

The study of double stars is, I think, one of the most fascinating which astronomy gives to us. The great number and variety of the objects already known, and the certainty that many new ones will be the reward of any diligent search for them, keep up the interest to such an extent that the observer needs no other incentive to his work. M. Flammarion, after an examination of the observations already made—and be it remembered that this branch of astronomy may be said to have been originated by Sir William Herschel, about the year 1800—finds that there are 11,000 double and multiple stars catalogued. Of these, 819 give certain indication of relative movement; of which 731 are double, 73 triple, 12 quadruples, 2 quintuples, 1 sextuple; of these again, 518 seem to form orbital systems, and 316 are only united by celestial perspective. Observation further shows that the components of an orbital system may be separated by as much as 22″, and two stars separated by 15′ of arc may have a common proper motion. Again, Mr. Doberck, after a critical examination of double stars, considers that orbits of only twenty-seven are known, and of these only seven are in the Southern Hemisphere. We know five stars whose period is under fifty years; seven with periods from 50 to 100 years; six between 100 and 200 years; six between 200 and 350 years; three over 400 years. If, in addition to these statistics, we bear in mind that the Southern Hemisphere is only in part explored, and that in the Northern Hemisphere, which has been examined over and over again with fine instruments, used by such observers as Sir William Herschel, Struve, and others, it has been recently shown to be possible, with moderate or small telescopes and good eyes, to find many new and difficult objects, as Mr. Burnham has done, I think you will see that there is justification for the opinion which I have just expressed, and that the observer, in watching these objects for changes, and then in the investigation of them to see whether they are due to the motion of one star round the other, to independent motion of the stars, or to the annual motion of the earth, has his interest constantly maintained; and it is not lessened by the fact that he may go on thus for years making

observations which seem to prove that there is orbital motion, only to find in the end that the changes he sees are due to independent motion, as I endeavoured to show you last year in reference to p Eridani, in the supposed orbit of which, as the observations accumulated, the ellipse had gradually to be increased, until in the end the most probable curve, if I may so express myself, was shown to be a straight line, or, in other words, the motion which was supposed to prove it a binary is found to be probably due to proper and not orbital motion at all. I may mention in passing, that if subsequent observation confirms this, the southern binaries referred to by Mr. Doberck will be reduced to six.

Before proceeding to give you some of the results of my own work on our southern double stars, it will be necessary to spend a few moments in describing the instruments and methods of observation. The first instrument with which the work was begun is a very fine 7¼-inch refractor by Merz, of 10 ft. 4 in. focal length, and very fine defining power; upon this is a position circle micrometer by the same maker, with 4½ in. position circle, and means of dark and bright wire illumination, and magnifying powers up to 580. For easy stars a power of 159, and for more difficult ones 330 was used; and the method of observing was, first to place the position wire so that it bisected both stars, and then to bisect each of the stars with one of the parallel wires. After which circle and micrometer were read. The wires were then crossed and the circle thrown out of position, and again the wires were brought to bisect the stars as before, and circle and micrometer again read. Hence two independent determinations of the angle, and two readings for the distance, the difference of which gives twice the angular difference between the stars. In reducing these, the two readings of the micrometer were in some cases compared with the coincidence of wires reading to get two measures; at other times the difference between the readings divided by 2 was taken. The result was the same whichever way it was taken. As the latter involved the smaller amount of computation, it has generally been adopted. In many cases ten readings of the micrometer were taken, that is, ten measures of angle and ten of distance; but in the majority of cases only six have been taken. When the stars are very close, the method of setting the wires to the apparent distance of the stars has been frequently adopted, and found more satisfactory than the other method. In a few instances the distance has been obtained by placing one of the wires between the stars, and from its known diameter and its relation to the distance of the centres, estimating the distance.

The other telescope, used since 1874, is a very fine 11½-inch objective, 12½-ft. focus, by Schröder, with position circle micrometer by the same maker. The illumination of wires (bright) is

obtained by four prisms placed near them, and the light from a small gas flame reflected into the side of the telescope. The magnifying powers are from 100 to 1,500, the power 800 being used for all difficult objects. The same method of observation as used with the Merz instrument has been continued with the $11\frac{1}{2}$-inch. Since 1879 the $7\frac{1}{4}$-inch telescope has been set up in the north dome, and has been used by Mr. Hargrave in measuring Herschel's stars and verifying the positions of new stars.

About 746 of Herschel's stars have been remeasured, some of them many times over, and 350 new double stars have been found. The results are appended, representing in this small compass some 15,000 measures of angle and distance.

For the sake of completeness I have included, in the general list, the few stars mentioned in my paper read before the Society last year.

With regard to other matters affecting the observations, I may mention that both the domes are made of thin brass, and the temperature is always very nearly the same inside as it is outside; hence the work could be begun as soon as the shutters were opened. It has been my practice to observe stars on the meridian, or very near to it, and always taking the R.A. by means of the instrument, the hour circle readings show the distance from the meridian when the observations were finished. In some instances bright stars have been measured during the day-time, but generally the aperture has been reduced to get rid of the excessive light of bright stars.

In entering the notes at the time of observation, a diagram showing the estimated distance and angle has been made in almost every case.

A few words about the list of 350 new double stars, which I have the honor to present to the Society to-night. They cannot be said to be the fruits of a search for new stars, for except an evening now and then devoted to that work, and some time recently given to it at my request by Mr. Hargrave, my object has been to re-examine Sir John Herschel's Cape list between 34° south and the pole. It would have been very easy to double the number even under these circumstances, if I had adopted the same limit of distance as Sir John Herschel; but I was anxious to avoid burdening the list in that way, and made my limit much smaller, and was always more anxious to record close pairs than wide ones. Nine of the new ones are under one second of arc*—several of them very difficult. Sixty-six are under five seconds, others under twenty-five seconds, and all of them are between the parallel 42° south and the pole, with one exception, which was found in the field of view with one of h.'s stars. As they are so far south

* In 2102 stars Herschel has only 25 of 1″ and under.

they are out of the reach of northern observers, and, so far as I can learn from published lists, they are new ; but hereafter, when the work of several double star observers in the southern hemisphere is published, it may be that some will be found in other lists.

Many of them are very close and otherwise interesting doubles; and there is every probability, seeing that h. overlooked them when in close proximity to stars that he observed, that some of them will prove to be binaries.

Only a few of them have as yet been repeatedly measured, but of these several show signs of motion. One at 12h. 4m. 60° 21′ was found in April, 1873, and then the measured angle was 212·35°, in May, 1880, it was 209·55°; at first the distance was 4·33″, last year it was 3·87″, showing a change of 3° in angle and 0·46″ in distance. Another at 15h. 50m., and dec. 65° 37′ in July 31, 1872, angle 134° 12, dist., 2·43″; on July 21, 1880, angle 131° 19′, distance 1·91″, again showing a change of 3° and 0·52″. Another very difficult pair at 10h. 45m., dec. 58° 38′ found in March, 1874, angle 256°, distance ½ a second, and in March, 1880, angle 258·81°, distance 1·15″; this one I have mentioned in the paper on double stars last year, but place it here for completeness.

Another star at 13° 0m. 59·14°, found in April, 1880, gives some indication of increasing distance, which, when first measured, was 0·33″, and when last seen was 0·70″.

Amongst the h. stars observed are all those which are or have been supposed to be in motion; of these p or 6 Eridani is one of the most interesting; orbits have several times been computed for it, and I found that my earlier observations required a considerable extension of the period, but the later ones demanded more still; in fact, a straight line accords better with all the observations made subsequent to Herschel's than any ellipse, and it would appear that the changes are due simply to proper motion; of this I think there cannot be any doubt; and it would appear from the meridian observations made at the Cape and Madras that it is the preceding star which is in motion, not the following one—h.'s and Dunlop's observations will not plot into the straight line, but it must be remembered that Dunlop had a very imperfect telescope and only guessed the distance; and h.'s angle does agree, the distance only being too little—a fault the possibility of which no one would have more readily admitted than h. himself. (See diagram.)

Alpha Centauri. It will be seen from the observations that periastron did not take place as predicted, in March, 1875, but in March, 1878, three years after. A great many measures of this binary will be found in the catalogue. At present the distance is increasing rapidly. (See diagrams showing plot of Sydney Observations.)

Some of h.'s stars present considerable difficulty, and are probably in motion, as for instance 4786 γ Lupi, an easy double in 1836 is now a single star, with the highest powers on the large equatorial. The motion is evidently slow, and it is remarkable that Herschel says of this star, "Cleanly divided with power 480 and the black division well seen, well separated with power 800"; and of π Lupi he says, "I do not think measures of this star will be got with this instrument." "Excessively difficult. It is closer than γ Lupi, for the discs are smaller, and yet are not so much divided." Now I found π Lupi quite an easy object, and the mean of my measures make the distance 0·73″, while Herschel made it 0·67″, so that there has been no great change in this star. But γ Lupi, which h. found so easy, I have examined a great many times and always failed to divide it even with the greatest powers on the large refractor.

Another star of the same character it would seem is h. 4854. h. classes this as "very difficult to be verified." On June 4, 1872, at the end of my evening's work, I looked at it and divided it easily with power 230; I only took one measure, making the angle 46° 25′, and the distance 1·75″, being satisfied that in this case, as in many others, that what was very difficult in Herschel's reflector was very easy in the Sydney refractor. By some chance I did not look at this star again until June 17, 1874, and to my surprise I could not divide it with any power. On July 16, 1880, I carefully examined it with the large telescope, and found only a round disc with all powers; so that we have here another interesting double in which the character of the motion has yet to be determined.

But it would take too long to go over all the cases of real or supposed change, and I have therefore collected them into a list, giving only bare measures, more details being found in the catalogue of stars measured. In all there are twenty-two stars which either give satisfactory indications of motion or have at some time been supposed to be in motion.

I have added another list of seventeen interesting objects, being such double stars as have been found in the same field of view as stars which Herschel measured, and which therefore we are justified in assuming that he looked at without discovering their character. Of these no doubt some must be set down as too difficult for the reflector; three, h. 3370, 4935, and 5078, have the large star double, but there are several instances in which the only satisfactory explanation is that the stars have changed since he looked at them. Perhaps the most striking case is 4909, where he was struck with the beauty of the group, and went on to describe it particularly, and he left out what is now one of its most striking features—a star within the pentagon, quite as bright as three of the stars he mentions. His descriptions of such things are as a rule so accurate that I am convinced the additional star has

appeared since Herschel looked at the object. As another case I may mention h. 4890, which he is careful to say "is in a vacancy in the Milky Way, which is here entirely free of ground stars," yet only 11s. following 4890; in fact, where h. must have seen it if then visible, I find a beautiful double star, magnitudes 11 and 11, and in a field of 80s. diameter sixteen other stars, and the telescope then (1871) used was $7\frac{1}{4}$, while h. used the large reflector. There are others in the list of the same character, but I must pass on to notice changes in the magnitudes of some of the double stars. One is rather curious. In December, 1834, Herschel observed No. 3972 in his list, and called the magnitudes $8\frac{1}{2}$ and $8\frac{1}{2}$; on March 7th, 1836, he looked again and called them $9\frac{1}{2}$ and 11; next night he verified this, making them 10 and 11. In 1834 he saw a 13 magnitude star which made an obtuse and nearly isosceles triangle with the other two, and he subsequently remarks it must have been ill seen (in 1836), as is evident by the magnitudes assigned, and from the fact that the 13 magnitude was invisible. When in 1873 I examined this, the magnitudes were $10\frac{1}{2}$ and 12, and I could not see the little star; it would seem therefore that they must have been brighter in 1834. The night in 1873 was not favourable, but h. 4130 was examined at the same time, and the magnitude then assigned 8–10, or the same as h.'s.

There are many stars in the Cape list that cannot be found. Over some of these I have spent a good deal of time to see if they were cases of fading stars or change of position; the result has not been satisfactory in most of the cases traced—they are evidently the result of clerical errors; for instance, entering a star with the wrong R.A. or declination. Probably most of those on the list of missing stars are of this character, but some may have been overlooked from changed magnitudes and other causes. Perhaps the number (forty-six) is not surprising when we consider the difficulty of the work as carried on by Herschel.

I have not given much attention to colours, nor have I carefully compared my estimates of colour with h.'s, but one or two instances have been found of apparent decided change. h. 5193 he says the large star is "very red"; I could not see any red in it in 1873 when I remeasured it.

In several cases I see decided colours where h. mentions none; these will be found in the list attached.

In conclusion, I may say that my object has been to remeasure all h.'s close stars south of 34° south declination. In very many cases considerable differences between h.'s observations with the reflector and mine have been found; but a complete list of them has not been made, because the reflector observations so often differ from those h. made with his equatorial that it did not appear to be worth while.

Instances of change—real or supposed (23 stars).

h.'s No.	
3407	h.'s angle 78° 30′ to 80° 51′; R., 80° 12′; probably not in motion.
λ Toucani.	
3423	h.'s angle, 17° 50′, dis. 5·78″; R., 0·8° dis. 5·34″.
K Toucani.	
3453	h.'s angle, 122° 6′, dis. 3·39″; R., 234° 41′, dis. 6·30″; all the later observations plot into a straight line as if the motion were proper, not binary.
p or 6 Eridani.	
3835	h.'s angle, 343°, dis. 4″; R., 2° 6′, dis. 2·90″; and 1882 R. 2·35″, angle 11° 39′.
3930	h.'s angle, 72° 43′, dis. 3·49″; R., 77° 5′, dis. 2·82°; probably not binary.
4025	Triple h.'s angles, 47° 6′ & 34° 8′, dis. 18″ & 40″; magnitudes, 6–14 & 6–12; H. angles, 69° 53′ & 37° 40′.
4106	h. 139° 18″; R. 143° 8′.
4373	h.'s angle, 226° 1′, dis. 25″; H., 338° 18′, dis. 12·66″.
4507	h.'s angle, 227° 4′, dis. 20″; H., 180° 26′, dis. 12·94″.
4521	h.'s angle, 119° 48′ to 122° 57′, dis. 4·96″ to 6·62″; R., 117° 27′, dis. 5·34″; motion improbable.
4539	h.'s angle, 346° 47′ to 361° 58′, dis. ⅝ to 1″; R., 1880, angle 1° 16′, dis. 1·39″. Motion doubtful.
γ Centauri.	
4645	h.'s angle, 231° 8′; H., 202° 11′, 1881.
4691	For complete measures, see list.
α Centauri.	
4728	h.'s angle, 108° 30′ to 115° 35′, dis. 0·67″ to 1·01; R., 1880, 99° 18′, dis. 0·90″. h. said this is closer than γ Lupi. R., with the Sydney refractor, found this an easy object, while γ Lupi is too difficult to divide; one or other must have changed.
π Lupi.	
4786	h.'s angle, 90° 10′ to 104° 30′, dis. ⅝ to 1″; R., 1880, with power 1,200 seems to be elongated, angle 270° E.; but though I have often tried I never can divide it. See note to π Lupi.
γ Lupi.	
4852	h.'s angle, 115°, dis. 6″; H. angle, 145° 8′, dis. 14·66″.
5014	h.'s angle, 69°, dis. 0·67″; R., 79° 18′, dis. 0·81; but as h.'s angles range from 61° to 76°, it is probably not binary.
5041	h.'s angle, 260° 5′, dis. 2″; R., 1871, 253° 35′, dis. 3·27″; R., 1873, 259° 52′, dis. 3·11″; H., 1880, 264° 52′, dis. 1·82″.
5027	h.'s angle, 59° 2′; R., 1871, 84° 42′; H., 1881, 91° 52′; showing change of 25° in thirty-five years, and 7° in ten years.
5078	h.'s angle, 313° 4′; H., 212° 50′. Is this a clerical error, 313° for 213° in Cape list?
5084	h.'s angle, 37° 6′, dis. 1·23″; R. angle, 53° 8′, dis. 1·15″.
γ Cor. Aust.	
5246	h.'s angle, 116° 8′, dis. 1½″; R. angle, 129°, dis. 3·82″.
5258	h.'s angle, 307° 31′, dis. 3·65″; R. angle, 288° 50′, dis. 4·68″.
θ Indi.	

(17 objects.)

Instances in which h. must have looked at double stars, if they were then double, without seeing them.

h.'s No.	
3370	Large star, double, R. No. 3.
3464	In same field with this is a small triangle of stars—the preceding one of which is a close double not seen by h., R. No. 11.
3499	Another double, precedes this only 15ˢ, R. No. 16.
3843	Another wide double in the field north following this, not seen by h.
3959	Another north, and only 12ˢ following, R. No. 74.
4077	Another double in the field with this, R. No. 82.
4122	Another a little south and in same field, R. No. 86.
4645	Two pairs in the field with this, R. Nos. 238 & 239.
4787	Two doubles in field with this, R. Nos. 265 & 266.
4835	Another double, 6ˢ following this, R. No. 273.
4890	Another double in field, 11ˢ following, and 16 other stars. h. says, "This is in a vacancy of the Milky Way, which is here entirely free from ground stars." R. No. 285.
4909	h. says, "This is a very symmetrical little constellation, of two large and three of 12 magnitude, forming a pentagon in a direction at right angles to the two large stars at its base." On 22 July, 1872, I found a small star very conspicuous within this pentagon, and adding much to its beauty. h. would certainly have mentioned it if seen. R. 289.
4935	Large star, double, R. No. 298.
5075	h. says nearest star is distant 15′; R. finds nearest is one of a pretty triangle; seems strange h. did not say so.
5078	Large star is double, R. No. 317.
5256	Another double in field with this, R. No. 328; and another precedes 65ˢ and 15′ north.
5292	Another double precedes this 60ˢ, R. No. 336.

List of 46 h. stars looked for and not found.

h's No.	
3366	
3393	
3397	
3530	Could not see either.
3577	
3590	
3648	
3678	
3719	
3748	Same as 3641.
3790	
3837	
3851	
3870	
3872	
3884	
3895	
3979	
4030	And 4038 probably same.
4085	
4130	And 4142 probably same.

List of 46 h. stars looked for and not found—*continued*

h.'s No.	
4390	
4480	
4504	
4544	
4596	h.'s decln. 65° 10′ pair at 64° 10′.
4628	No companion.
4695	
4707	
4840	Probably same 4836.
4854	Single star now.
4858	
4906	
4959	
4975	
4979	Looked for several times
4996	
4998	
5006	
5008	
5103	
5234	
5267	
5319	
5385	
5437	

Instances of change in magnitude or colour.

h.'s No.	
3419	h. does not mention colour; R. sees greenish yellow and copper red.
3962	h. calls magnitudes 8 and 10; R. several times 8 and 8½.
3972	h. calls magnitudes 8½ and 8½, 24 December, 1834, and 9½ and 11 on 7 March, 1836, and 10 and 11, 8 March, 1836; R., 1873, 10½ and 12; h. makes the remark, "A 13 mag. star—makes an obtuse angle and nearly isosceles triangle with these two; it does not appear to have been noticed in either of the other observations, in which the stars must have been ill seen, as is evident by the magnitudes affixed"; but then R., 1873, made them 10½ and 12 (?) variable.
3977	h. 8–9 now 9–13.
4104a	h. white and blue; R. yellow and blue.
4104b	h. no colour; R. yellow and white.
4539	h. examined this star four times,—on three it was badly defined; I have examined it three times, and twice it was badly defined. Can there be any peculiarity about the star?
γ Centauri.	
4813	h. does not mention colour; R. sees yellow and blue.
4890	h. says, "This pair of 8 and 9 magnitudes is in a vacancy of the Milky Way which is here entirely free of ground stars"; and on 13 July, 1871, when I looked at it with 7½-inch telescope I found a pretty double star of 10 and 11 magnitudes, only 11″ following h's. star, and in a field 80s. in diameter; I counted twenty stars from 9 mag. downwards, *i.e.*, two double and sixteen other stars.
5193	h. says large star very red; R. cannot see it red at all.
5292	h. mag. 7½–10; R. 10–11 (?) change.

Errors in Cape Catalogue.

h a. No.	
3748	No star at 5h. 13m., but there is at 4h. 13m., and this star is numbered 3641.
3641	
4030	Probably same star.
4038	
4130	Probably same star.
4142	
4272	R. A. 6m. too large. Should be 9h. 48m.
4596	h.'s declination is 65° 7′; star is at 64° 16′.
4684	Cannot find a double here.
4836	Probably same star.
4840	
5132	Angle of position 160° in error.
5235	Probably same star.
5245	
5327	Angle of position 180° in error.

In the Cape catalogue Sir John Herschel used "h" as the symbol for himself. I have adopted the same letter for him in the following catalogue. R. is used for myself, and H. for Mr. Hargrave.

A diagram of the positions of p Eridani is given, and another showing the Sydney observations of α Centauri, also a number of smaller ones showing the interesting triple or multiple stars amongst those of the Cape catalogue which have been measured, and similar diagrams for some of the new ones.

The value of a revolution of the screw of each of the micrometers has been carefully determined in the usual way, *i.e.*, by separating the wires ten or more revolutions and observing the transits of circumpolar stars; that of the 11½-inch is 18·006″, and that of the 7½-inch is 21·670″.

It has been the custom always to make the measures with the star as close to the meridian as possible, and the star's hour angle at the time the observations were finished has been recorded in every case, and can be referred to if necessary. All the observations prior to July, 1874, were made with the 7½-inch, and all the observations since that date which are marked H. have been made with the same instrument, and all those marked R. since the date given above were made with the 11½-inch.

The date given in each of the catalogues is the date of the observation; to many of the new stars the date of discovery is added. A table showing the value of the decimal date is given at the end.

H. C. RUSSELL.

Sydney Observatory,
24 March, 1882.

SYDNEY OBSERVATORY.

MEASURES

OF

HERSCHEL'S DOUBLE STARS

MADE WITH

THE SYDNEY REFRACTORS,

1882.

Double Stars observed and

No. of star in this catalogue.	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R.	Observer's initial. H.	Approximate R.A.	Declination South.	Position angle in degrees and minutes.	No. of observations of position angle.	Distance in seconds of arc.	No. of observations of distance.
							h. m.	° ′	° ′		″	
1	8	10	71	5442	R.	..	0 2	78 12	60e	..	..	..
2	7	1	79	3349	..	H.	0 5	68 0	106 8	8	17·11	8
3	7	1	79	3350	..	H.	0 5	58 9	174 56	8	4·72	8
4	8	1	79	3352	..	H.	0 5	50 19	310 23	8	6·42	8
5	8	1	79	3354	..	H.	0 9	36 43	148 49	5	17·21	5
6	10	11	70	3358	R.	..	0 10	62 10	.....	..	..	..
	30	11	70	,,	R.	..	....	....	.....	..	..	..
	25	11	79	,,	..	H.	....	....	.....	..	..	..
7	14	12	80	3365	..	H.	0 20	51 27	170 45	6	15·93	6
8	10	10	71	3366	R.	..	0 22	68 24	.....	..	..	..
9	26	11	78	3370	R.	..	0 23	66 36	61 56	4	38·03	4
	1	12	79	,,	..	H.	0 23	66 36	62 19	4	38·67	4
	2	12	79	,,	..	H.	0 23	66 39	62 27	10	38·44	10
10	29	10	70	3373 after β Toucani	R.	..	0 26	63 40	169 57	7	27·51	7
11	1	11	70	3374	R.	..	0 27	75 57	117 17	10	31·97	10
12	27	11	79	3375	..	H.	0 28	35 42	165 59	10	5·16	10
13	12	11	73	3388	R.	..	0 37	54 47	238 9	6	16·89	6
14	24	11	70	3393	R.	..	0 38	75 19	.....	..	..	..
15	5	12	79	3395	..	H.	0 40	42 41	69 45	10	7·06	10
16	12	11	73	3397	R.	..	0 41	54 46	.....	..	..	..
17	2	12	79	3398	..	H.	0 41	52 45	126 24	10	27·20	10
18	5	12	79	3407	..	H.	0 48	70 16	80 12	10	20·72	10
19	24	11	70	3415	R.	..	0 58	41 18	.....	..	..	..
	..	..	..	,,	..	..	....	....	.....	..	..	..
	28	2	72	,,	R.	..	....	....	140e	..	1e	..
	24	11	75	,,	R.	..	....	....	157e	..	½e	..
	20	11	77	,,	R.	..	....	....	155e	..	1e	..
	13	1	82	,,	..	H.	....	....	141 55	6	0·91	6
20	19	2	72	3416	R.	..	0 59	60 43	.....	..	1e	..
	2	12	79	,,	..	H.	0 58	60 49	126 45	10	4·05	10
	29	5	80	,,	R.	..	0 58	60 47	125 38	6	5·43	6
21	20	10	78	After 3419	R.	..	1 3	55 56	239 47	3	6·25	2
	8	10	79	,,	..	H.	1 3	55 56	.....	..	..	..
	19	12	79	,,	..	H.	1 3	55 56	245 44	10	5·31	10
22	8	12	79	3421	..	H.	1 8	51 23	62 27	10	45·90	10
23	24	11	70	3423, κ Toucani	R.	..	1 11	69 33	0 11	11	5·00	10
	25	11	72	,,	R.	..	1 10	69 31	359 49	5	5·38	5
	5	12	79	,,	..	H.	1 11	69 39	0 57	10	4·27	10
	29	5	80	,,	R.	..	1 12	69 31	0 24	4	5·64	6
24	19	2	72	3435	R.	..	1 21	60 17	6e	..	..	..
24a	13	2	82	3447	..	H.	1 28	30 7	.....	..	..	..
25	15	12	73	3452	R.	..	1 34	54 4	103 9	6	11.10	6
26	2	12	70	After 3453 p Eridani	R.	..	1 35	56 49	242 5	10	5.46	10
	1	3	78	,, ,,	R.	..	,,	,,	236 39	10	6·03	10
	4	3	78	,, ,,	R.	..	,,	,,	236 36	4	5·91	4
	20	3	78	,, ,,	R.	..	,,	,,	237 26	10	6·15	10
	20	10	78	,, ,,	R.	..	,,	,,	235 0	2	6·28	2
	8	12	79	,, ,,	..	H.	....	....	237 17	10	5·44	10
	12	6	80	,, ,,	R.	..	....	....	234 41	10	6·30	10
27	19	11	73	3464	R.	..	1 41	76 51	160 20	6	3.73	6
28	1	11	70	3475	R.	..	1 51	60 54	44 39	5	3·31	5
	26	11	70	,,	R.	..	1 51	60 54	40 3	11	2·78	10
29	25	11	70	3488	R.	..	2 9	62 12	137 42	10	5·36	10
	8	12	79	,,	..	H.	....	....	.....	..	....	..
	29	12	79	,,	..	H.	2 9	62 19	137 11	9	4·36	1
30	31	12	79	3494	..	H.	2 15	36 1	.....	..	....	..

measured at Sydney Observatory.

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
1	....	9 14	.....	No. 7 or 8 magnitude star here; only 9 and 14; cannot measure it.
2	159	9 11	.....	
3	159	9 10	.....	
4	159	8 11	.....	
5	159	9 10	.....	Very indistinct.
6	....	9 9	.....	Not found.
	....	....	.....	Not found.
	159	10 10	.....	Too ill-defined to measure.
7	159	8 10	.....	Cirrus stopped work.
8	150	7 14	.....	Looked carefully for companion; could not see it R. No. 3.
9	140	9 10	.....	Large star double; night too bad to measure it.
	159	8 9	.....	Scud stopped observations.
	159	8 9	.....	
10	....	4 4	.....	
11	100	9 10	.....	Cloudy for a time, cleared after. H.'s position, 112·6; distance, 20″; magnitude, 9·11.
12	159	6 8	.....	Bad night.
13	....	7¾ 8	.....	
14	....	11 12	....	Not found.
15	159	8 9	.....	
16	....	7 15	.....	Companion not seen.
17	159	8 9	.....	
18	150	7 7½	.....	
19	320	7 8	.....	Found a star; could not divide it; definition good.
	320	....	.....	Divided easily with 320 power.
	400	8 9	.....	Seen double; not measured.
	200, 400	....	.....	Seen double; stars unsteady.
	....	....	.....	Night too bad to measure; seen with 150 power.
	333	7 8	.....	Three stars of 7 magnitude in field of finder with this.
20	....	....	....	Found, not measured.
	159	8 8	.....	
	....	8 8	.....	
21	333	8 7	Greenish yellow, copper red.	Position doubtful. H. says nothing about colour.
	159	....	.....	Seen, not measured.
	159	....	.....	
22	159	8 8	.....	
23	320	6 9	.....	H.'s second list, positions 17·50 and 14·20; distances 5·78 and 4·24; magnitudes, 5–11, 6–10.
	....	6 9	.....	Stars pretty steady; definition middling.
	159	6 9	.....	
	300	....	.....	A very fine object.
24	....	8 10	.....	Seen, not measured.
24a	333	....	.....	Not divided with 333 power.
25	....	8 9	.....	Ill-defined.
26	280	6 6	.....	Rapid motion.
	....	7 7	.....	
	175	....	.....	Aperture, 8 in. Clouds stopped observations.
	520	6 6½	.....	Aperture, 9 in. Stars ill-defined.
	....	7 7	Both yellow	Woodford.
	159	6 6	.....	
	....	....	.....	
27	....	8 10	.....	This is one of three stars forming a triangle.
28	320	7 7	.....	Very difficult; bad definition.
	320, 480	....	.....	Definition good.
29	....	....	.....	Pretty double. Herschel's position, 134° 56′; distances, 4·25″ and 6·28″; magnitudes, 9-9; 2nd list.
	159	....	.....	Seen, not measured.
	159	8 8	.....	
30	159	9 9	.....	Seen elongated; no measure made.

Double Stars observed and

No. of star in this catalogue.	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R.	Observer's initial. H.	Approximate R.A.	Declination South.	Position angle in degrees and minutes.	No. of observations of position angle.	Distance in seconds of arc.	No. of observations of distance.
							h. m.	° ′	° ′		″	
31	12	11	73	3499	R.	..	2 18	60 34	61 25	4	8·35	4
32	30	12	79	3520	..	H.	2 35	55 25	203 31	10	20·48	10
33	31	12	79	3525	..	H.	2 37	61 5	.....	..	....	..
34	31	12	79	3527	..	H.	2 39	41 2	.....	..	....	..
	9	1	80	,,	..	H.	2 39	41 7	43 37	10	1·41	10
35	22	12	73	3530	R.	..	2 43	81 16	.....	..	....	..
36	29	12	79	3532	..	H.	2 44	38 3	146 12	10	5·22	10
37	31	12	79	After 3532	..	H.	2 44	38 55	.....	..	....	..
	13	1	80	,,	..	H.	....	....	.....	..	....	..
38	22	12	73	3539	R.	..	2 49	78 37	45e	..	6e	..
39	30	12	73	3545 θ Eridani	R.	..	2 54	40 47	82 18	5	8·19	5
	10	1	79	,, ,,	..	H.	....	....	85 19	10	9·14	10
40	9	1	79	3549	..	H.	2 59	38 32	222 30	10	1·94	10
41	26	11	70	1st after 3549	R.	..	3 1	51 49	69 15	10	38·05	10
	30	12	79	,, ,,	..	H.	3 1	51 53	69 40	10	39·01	10
42	16	1	72	3556	R.	..	3 8	44 52	230e	..	1½e	..
	15	1	79	,,	..	H.	3 8	44 58	204 8	10	2·12	10
43	13	1	79	After 3556	..	H.	3 9	64 22	39 35	10	44·27	10
44	2	1	80	3562	..	H.	3 10	64 49	330 26	10	34·22	10
45	28	11	70	After 3567	R.	..	3 13	64 55	102 38	10	19·35	10
	13	1	79	,, ,,	..	H.	3 14	64 53	101 0	10	19·89	10
	16	1	80	,, ,,	..	H.	3 13	64 54	104 42	10	19·11	10
46	29	11	70	3568	R.	..	3 12	79 28	223 56	10	15·15	10
	10	1	71	,,	R.	..	....	....	223 55	10	15·21	10
	31	12	79	,,	..	H.	....	....	224 19	10	15·15	10
47	14	1	79	3576	..	H.	3 21	46 2	340 24	10	3·03	10
48	3	12	75	3577	R.	.	3 19	82 16	.....	..	..	..
49	3	12	75	3581	R.	..	3 26	80 55	331 59	10	5e	..
50	22	12	73	3582	R.	..	3 26	83 58	.....	..	..	..
51	30	12	79	1st after 3586	..	H.	3 35	40 52	324 43	10	7·43	10
	13	1	80	,,	..	H.	....	....	326 24	10	6·65	10
52	29	12	79	2nd after 3586	..	H.	3 36	60 15	270 0	10	57·79	10
53	2	1	80	3590	..	H.	3 41	42 16	.....	..	..	..
54	2	1	74	3591	R.	..	3 41	51 41	.....	..	..	..
55	18	12	72	3592	R.	..	3 40	54 43	17 11	10	5·72	10
56	14	1	79	3597 f Eridani	..	H.	3 44	37 59	205 10	10	7·00	10
57	2	1	74	3598	R.	..	3 45	50 49	229 45	4	14·22	4
58	6	1	71	3600	R.	..	3 46	64 19	15 19	10	23·12	10
	20	1	80	,,	..	H.	3 45	64 33	14 59	10	22·00	10
59	6	1	71	3603	R.	..	3 45	71 22	79 20	10	19·37	10
	2	1	80	,,	..	H.	....	....	81 22	10	19·58	10
60	15	1	79	3605	..	H.	3 45	80 35	161 27	10	20·07	10
61	17	1	79	3606	..	H.	3 49	71 9	339 22	2	20·03	3
62	28	2	81	3607	..	H.	3 46	81 13	124 5	6	36·99	6
63	23	1	79	3609	..	H.	3 51	63 0	.....	..	..	..
64	23	1	79	3610	..	H.	3 52	62 59	.....	..	..	..
65	23	1	79	3611	..	H.	3 52	40 16	139 4	10	3·90	10
66	17	1	79	3612	..	H.	3 50	80 23	158 39	10	20·26	10
	23	1	79	,,	..	H.	....	....	161 13	10	20·35	10
67	28	1	79	3618	..	H.	3 58	49 50	320 0	10	9·73	10
68	28	1	79	3620	..	H.	4 0	44 47	354 1	4	79·96	4
69	28	1	79	3622	..	H.	4 0	36 10	109 54	10	10·69	10
70	11	1	71	3624	R.	..	4 1	75 5	.....	..	..	..
	2	3	81	,,	..	H.	....	....	25 46	6	19·74	6
71	2	3	81	3625	..	H.	4 6	52 13	180 32	6	11·46	6
72	29	1	79	3627	..	H.	4 8	34 4	297 51	10	28·15	10

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
31	....	10 11	.....	Another pair precedes this 15 seconds only. R. No. 16.
32	159	8 9	.....	
33	159	7	.....	7-magnitude star seen ; no companion.
34	159	7 7	.....	Seen, not measured.
	159	7 7	.....	
35	....	8 12	.....	Neither of the companions seen ; 11-magnitude star follows about 10 seconds.
36	159	6 8	.....	
37	159	6	.....	6-magnitude star here ; no companion.
	159	6	.....	6-magnitude star here ; no companion.
38	....	10 11	.....	Estimated position and distance.
39	....	5 6	Straw-yellow	Definition middling ; hazy, thick night.
	159	....	.....	
40	159	....	.....	
41	....	7 8	.....	Herschel's 2nd list. Position, 70·42 ; distance, 37·31 ; magnitudes, 7-8 ; no change.
	159	7 9	.....	
42	....	....	....	Seen ; bad definition ; no measures.
	159	6 11	.....	
43	159	6 11	.....	
44	159	8 8	.....	
45	....	7 9	Yellow	Definition good ; large star yellow. Herschel's position, 101·49 ; distance, 18·09″ ; magnitudes, 7-9.
	159	7 9	.....	
	159	7 9	.....	
46	...	7 9	Yellow	Herschel's large list. Position, 224·8 ; distance, none given ; magnitudes, 7-9.
	159	7 9	.....	White haze about ; small star precedes.
	159	6 8	.....	
47	159	7 9	....	
48	....	8 12	.....	Companion not seen ; night good.
49	....	11 12	.....	Distance estimated. This double is the northern corner of a trapezium.
50	....	7 11	.....	Seen, but clouds prevented measures.
51	159	8 8½	.....	
	159	8 8½	.....	
52	159	7 8	.....	
53	159	....	.....	Not found.
54	....	10 13	.....	Seen, too faint to measure.
55	....	6 10	Straw-yellow, sky blue.	Definition bad.
56	159	6 7	.....	
57	....	10 11	.....	Faint and difficult ; verified.
58	....	9 10	.....	Well defined.
	159	9 10	.....	
59	....	9 10	.....	Magnitudes seem too small.
	159	9 10	.....	
60	159	9 10	.....	
61	159	9 10	.....	Very faint.
62	159	9 10	.....	
63	159	11 11	.....	Seen, too faint to measure.
64	159	10 12	.....	Seen, too faint to measure.
65	159	9 9	.....	
66	159	8 9	.....	Small star, very indistinct.
	159	....	.....	
67	159	10 10	.....	
68	159	7 8	.....	
69	159	9 9	.....	
70	....	10 11	.....	Bad definition ; seen but not measured.
	159	9 10	.....	
71	159	10 10	.....	
72	159	8 10	.....	

Double Stars observed and

No. of star in this catalogue.	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R.	Observer's initial. H.	Approximate R.A.	Declination South.	Position angle in degrees and minutes.	No. of observations of position angle.	Distance in seconds of arc.	No. of observations of distance.
							h. m.	° ′	′			
73	13	1	80	3628	..	H.	4 8	36 35	49 26	10	49·56	10
74	16	1	71	3631	R.	..	4 9	69 16	225 52	10	6·44	10
	29	1	79	,,	..	H.	....	....	225 36	10	7·08	10
75	20	1	80	3634	..	H.	4 11	44 58	340 57	10	10·70	10
76	2	1	74	3641	R.	..	4 15	62 29	270 4	6	8·39	6
	3	2	79	,,	..	H.	....	....	268 59	10	7·82	10
77	3	2	79	3642	..	H.	4 16	34 9	157 25	10	6·39	10
78	3	2	79	3643	..	H.	4 16	44 33	114 6	4	70·84	4
79	30	12	78	3644 θ Reticuli	R.	..	4 19	63 32	6 20	4	5·20	4
80	4	2	80	3648	..	H.	4 20	43 53	.....	..	..	..
81	29	1	79	3650	..	H.	4 23	40 46	181 59	10	3·20	10
82	15	12	73	After 3650	R.	..	4 23	57 20	233 8	6	6·92	6
83	30	12	78	3651	R.	..	4 25	64 27	.....	..	..	..
	3	2	80	,,	..	H.	....	....	62 15	10	16·95	10
84	30	12	73	3655	R.	..	4 62	64 21	.....	..	..	..
85	5	2	80	3656	..	H.	4 23	44 39	72 5	10	17·16	10
86	6	4	81	3657	..	H.	4 24	66 29	339 8	6	7·24	6
87	23	1	80	3662	..	H.	4 28	66 5	60 16	10	18·92	10
88	30	12	73	3665	R.	..	4 32	60 5	40e	..	6e	..
89	16	1	72	3670	R.	..	4 32	63 6	99 18	4	33·00	4
	29	1	80	,,	..	H.	....	....	98 52	10	31·83	10
90	5	2	79	3671	..	H.	4 35	50 22	279 49	10	6·26	10
91	4	2	79	3673	..	H.	4 35	77 55	64 24	10	10·18	10
92	4	2	80	3678	..	H.	4 37	45 14	.....	..	..	..
93	4	2	79	3679	..	H.	4 37	62 30	.....	..	..	..
93a	21	2	82	3680	..	H.	4 37	52 10	26 38	6	8·28	6
94	5	2	79	3683	R.	..	4 40	59 9	79 6	6	3·46	6
	5	2	79	,,	..	H.	....	....	80 36	10	3·32	10
95	29	1	80	3691	..	H.	4 39	77 10	42 1	10	36·49	10
95a	21	2	82	3694	..	H.	4 46	45 18	65 11	6	8·21	6
96	18	1	73	3696	R.	..	4 44	56 14	278 44	6	3·62	6
97	30	3	81	3697	..	H.	4 47	41 30	281 34	6	12·18	6
98	24	12	72	3702 ι Pictoris	R.	..	4 48	53 37	56 1	6	11·85	5
	3	2	80	,,	..	H.	....	....	58 2	10	11·92	10
99	4	2	80	3715	..	H.	4 56	49 42	110 17	10	9·14	10
100	30	3	81	3717	..	H.	4 58	39 46	198 14	6	10·08	6
101	11	2	80	3719	..	H.	5 0	67 26	.....	..	..	..
102	17	2	79	3721	..	H.	5 1	80 51	221 38	10	2·55	10
103	4	4	81	3726	..	H.	5 3	45 50	61 27	6	14·95	6
104	17	2	79	3728	..	H.	5 5	41 23	259 31	10	10·29	10
	4	4	81	,,	..	H.	....	....	258 33	6	8·80	6
105	17	2	79	3729	..	H.	5 5	45 0	229 57	10	10·24	10
106	3	2	80	3733	..	H.	5 8	79 33	.....	..	..	..
106a	20	2	82	3734	..	H.	5 8	42 56	196 16	6	10·40	6
107	19	10	78	Rigel's companion	R.	..	5 9	8 21	45e	..	0·25e	..
	20	10	78	,,	R.	..	5 9	8 21	64e 199e	.. ..	..	..
108	5	2	80	3738	..	H.	5 10	55 27	.....	..	..	..
109	27	1	73	3739	R.	..	5 11	48 1	103 53	6	3·34	6
110	11	2	80	3740	..	H.	5 11	36 51	286 6	10	23·45	10
111	19	2	79	3743	..	H.	5 13	60 7	.....	..	..	..
	5	2	80	,,	..	H.	....	....	129 1	10	4·42	10
111a	20	2	82	3745	..	H.	5 14	54 6	171 57	6	12·69	6
112	18	12	72	3746	R.	..	5 12	72 12	263 29	4	4·88	4
113	18	1	73	3748	R.	..	5 15	62 33	.....	..	..	..
114	6	4	81	3756	..	H.	5 17	58 52	165 43	6	17·37	6
115	6	4	81	3760	..	H.	5 22	35 25	223 40	6	7·04	6
116	7	1	78	3761 β Leporis	R.	..	5 23	20 51	282 56	8	2·42	8
	8	1	78	,, ,,	R.	..	5 23	20 51	282 26	2	2·56	2
	26	2	78	,, ,,	R.	..	5 23	20 51	282 32	10	2·74	10

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
73	159	7 7½	.....	
74	....	9½ 9½	.....	
	159	....	.....	
75	159	9 9	.....	
76	150	6 11	Straw colour	Large star, straw colour; both bright clean stars.
	159	....	.....	Same as H. 3748, R.A. of which is 1 hr. too much
77	159	7 10	.....	
78	159	5 8	.....	
79	....	6 9	.....	The pair form the preceding corner of a triangle.
80	159	....	.....	Not seen.
81	159	6 9	.....	
82	....	8 8½	.....	Both yellow.
83	....	9 10	.....	Seen; not measured.
	159	9 10	.....	
84	....	8 13	.....	Seen in field with 3651.
85	159	9 10	.....	
86	159	10 11	.....	
87	159	8 9	.....	
88	....	10 10	.....	Nice double; magnitudes, doubtful, owing to haze.
89	....	6 8	Uncertain	Definition bad; thin hazy clouds.
	159	6 9	.....	Thin clouds about.
90	159	11 12	.....	Very faint.
91	159	8 8	.....	
92	159	8 10	.....	Not found.
93	159	7	Red	Large red star seen; no companion.
93a	159	10 10	.....	
94	....	7 7	.....	
	159	....	.....	
95	159	9 9	.....	
95a	159	8 10	....	Small star blue.
96	....	9½ 10½	.....	Air clear, passing clouds.
97	435	6 14	.....	
98	....	5½ 6	Both straw yellow ..	Stars steady.
	159	6 7	.....	Cloudy.
99	159	8 9	.....	Looked for 3713; could not find it.
100	159	10 11	.....	
101	....	....	.....	Not found.
102	159	8 9	.....	
103	159	10 10	.....	
104	159	5 9	.....	
	159	6 11	.....	
105	159	10 10	.....	
106	....	9 9	.....	Seen; not measured.
106a	159	10 10	.....	Very difficult.
107	600 & 800	9 9	.....	When best defined clearly divided; distance not more than ½″; companion of Rigel. See diagram.
	400, 435, 800.	....	.....	
108	159	11 11	.....	Seen; not measured.
109	....	9 9	.....	Very neat; clouds about.
110	....	7 8	.....	
111	159	....	.....	Seen; cloudy.
	159	9 10	.....	
111a	159	9 11	.....	
112	159	8 8	.....	Bad definition.
113	....	9 11	.....	This star is 3641; near α Reticuli.
114	159	9 11	.....	
115	159	6 6½	.....	No 11 magnitude star seen; unsteady definition.
116	800	4 11	.....	This is Burnham's companion. See diagram.
	....	....	.....	Very unsteady; small star; only seen in glimpses.
	800	8½ 13	.....	Herschel's companion; seen with 150 power.

Double Stars observed and

No. of star in this catalogue.	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R.	Observer's initial. H.	Approximate R.A. h. m.	Declination South. ° ′	Position angle in degrees and minutes. ° ′	No. of observations of position angle.	Distance in seconds of arc.	No. of observations of distance.
	28	2	78	3761 β Leporis	R.	..	5 23	20 51	286 49	3	2·72	7
	4	3	78	,,	R.	..	5 23	20 51	283 21	10	2·73	10
117	11	1	71	After 3761	R.	..	5 22	52 26	106 10	6	38·59	5
	29	1	80	,,	..	H.	....	....	106 45	10	38·64	10
118	24	2	79	After 3763	..	H.	5 23	43 27	251 41	10	11·84	10
119	3	2	80	,, 3767	..	H.	5 27	42 33	169 47	10	6·48	10
120	24	12	72	3773	R.	..	5 27	82 25	276 56	3	18·61	3
121	6	2	72	3777	R.	..	5 31	54 59	348 20	2	52·26	2
122	2	1	74	3788	R.	..	5 35	71 0	258 32	4	15·56	4
123	21	2	79	3784	..	H.	5 35	46 9	58 38	10	4·65	10
124	12	2	73	3789	R.	..	5 35	50 18	358 1	4	9·14	4
125	6	2	72	3790	R.	..	5 37	66 58	.....	..	..	..
126	2	2	79	3793	..	H.	5 39	48 18	110 10	10	11·42	10
127	23	2	80	3797	..	H.	5 41	46 25	174 48	10	50·01	10
128	24	1	73	3802	R.	..	5 42	55 52	308 28	4	6·98	4
129	30	3	81	3803	..	H.	5 43	44 51	113 35	6	17·67	6
130	8	4	81	3805	..	H.	5 46	43 32	118 44	6	5·57	6
131	8	4	81	3806	..	H.	5 47	39 28	114 44	6	11·81	6
132	30	1	73	3812	R.	..	5 49	59 53	190 20	6	2·43	6
133	23	2	80	3814	..	H.	5 46	74 50	173 39	10	3·21	10
134	27	2	79	3816	..	H.	5 50	47 59	230e	..	..	..
135	6	2	72	3820	R.	..	5 52	69 56	94 45	6	27·00	6
135a	13	3	82	3822	..	H.	5 54	53 21	304 57	6	55·84	6
136	18	1	73	3824	R.	..	5 56	50 23	240e	..	8e	..
136a	2	3	82	3827	..	H.	5 58	41 7	248 14	6	23·17	6
137	27	2	79	3828	..	H.	5 58	53 55	125 15	10	14·15	10
138	10	3	79	3831	..	H.	6 0	41 9	134 19	10	2·56	10
139	14	2	73	After 3834	R.	..	6 1	45 5	230 35	6	3·04	6
140	24	1	73	3835	R.	..	6 1	48 25	2 6	6	2·90	6
	9	3	82	,,	R.	..	....	....	11 39	10	2·35	10
141	8	4	81	3836	..	H.	6 4	49 52	302 11	6	9·06	6
142	27	2	74	3837	R.	..	6 4	55 57	.....	..	..	..
143	29	1	72	3843	R.	..	6 10	60 20	326 25	6	11·20	6
	19	2	74	,,	R.	..	....	....	326 34	4	11·89	4
144	23	2	80	3846	..	H.	6 12	49 3	.....	..	..	..
145	12	1	71	After 3847	R.	..	6 14	65 23	115 24	10	21·13	10
	29	1	72	,,	R.	..	....	....	116 5	6	20·59	6
	11	3	79	,,	..	H.	....	....	116 47	10	20·52	10
146	29	1	73	3848	R.	..	6 14	47 4	139 8	4	5·72	4
	6	3	79	,,	..	H.	6 14	47 4	138 3	10	5·60	10
147	13	3	79	3849	..	H.	6 16	39 20	51 52	10	39·83	10
148	19	2	74	3851	R.	..	6 17	61 34	.....	..	..	..
149	12	3	79	3852	..	H.	6 17	44 44	.....	..	..	..
150	17	3	80	3854	..	H.	6 18	54 27	.....	..	..	..
151	17	2	73	3855	R.	..	6 14	74 28	79 54	5	8·93	5
152	16	3	80	3856	..	H.	6 20	45 40	2 2	10	40·52	10
153	11	3	79	3857	..	H.	6 20	36 39	260e	..	....	..
154	6	3	73	3860	..	H.	6 22	40 54	226 53	10	7·86	10
155	19	2	74	3861	R.	..	6 23	58 7	62 32	4	3·21	4
156	17	3	79	3870	..	H.	6 28	75 3	.....	..	....	..
157	8	3	80	3822	..	H.	6 30	79 55	.....	..	....	..
158	15	3	80	3873	..	H.	6 30	57 31	.....	..	....	..
159	12	3	79	3874	..	H.	6 31	58 39	.....	..	....	..
160	6	3	79	3879	..	H.	6 33	70 32	89 40	10	12·48	10
161	29	1	72	3883	R.	..	6 35	48 10	319 18	6	12·99	6
162	14	3	72	3884	R.	..	6 35	55 15	.....	..	....	..
	27	2	74	,,	R.	..	....	....	.....	..	....	..
	24	2	76	,,	R.	..	....	....	.....	..	....	..
	10	3	79	,,	..	H.	....	....	.....	..	....	..
163	10	3	79	After 3884	..	H.	6 38	38 17	277 49	10	8·03	10
164	7	2	72	3888	R.	..	6 36	78 49	114 4	2	36·02	2
165	28	12	75	Sirius	R.	..	6 40	16 33	54 53	5	11·71	

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
	800	9 9	.....	Aperture 7 in. Observer's feet south instead of north.
	800	....	.....	Aperture 8 in. ; definition fair.
117	....	8 8	.....	Definition bad ; thin clouds.
	159	7 7	.....	
118	159	9 10	.....	
119	159	8 8½	.....	
120	....	9½ 10	Blue	Small star, very faint.
121	150	6 9	.....	
122	....	9 11	.....	Difficult, owing to white haze.
123	159	7 10	.....	
124	....	9 9½	.....	Very little difference in magnitude.
125	....	....	.....	Not found.
126	159	7 11	.....	
127	159	8 9	....	Very bad night.
128	....	9 11	.....	Very faint.
129	159	7 9	.....	
130	159	10 11	....	
131	159	11 11	.....	
132	....	9½ 9½	.....	Definition good at times, then bad again.
133	159	10 10	.....	Clouds about.
134	159	6 13	.....	Seen ; won't bear light to measure.
135	150	7 12	....	Stars pretty steady ; definition moderate.
135a	159	6 7	.....	h.'s small star not seen.
136	....	6 9	.....	Seen, but ill-defined ; no measures taken.
136a	159	9 9	.....	
137	159	9 10	.....	
138	159	9 9	.....	
139	150	6 10	Both yellow	Very bad definition.
140	....	7 7	.....	
	800	7 7	.....	Beautiful pair ; h's angle 348·5°.
141	159	10 10	.....	
142	....	....	.....	Not found ; definition fair.
143	150	9 9½	.....	
	....	10 10½	.....	
144	159	9 10	.....	Seen ; not measured.
145	....	6 8	.....	
	150	7 8	.....	
	159	7 9	.....	
146	....	10 10	.....	Definition bad ; hazy.
	159	10 10	.....	
147	159	7 9	.....	
148	....	....	.....	Not found.
149	159	9 11	.....	Seen ; not measured.
150	159	9 12	.....	Seen ; not measured.
151	....	10 10½	.....	Nearly alike ; definition middling.
152	159	7 11	... .	
153	159	7 13	.....	Seen ; won't bear light.
154	159	7 10	.....	
155	....	9 9	.....	
156	159	....	.....	Not found.
157	159	....	.....	Not found.
158	159	9 11	.....	Seen ; not measured.
159	159	6 12	.....	Seen ; not measured.
160	159	10 10	.....	
161	150	6½ 9	Yellow, pale blue ..	
162	....	7 12	.....	Small star not seen ; another red star follows.
	....	....	Red	Red star carefully examined ; no companion seen.
	120, 200	7	Red	Red star seen ; no companion found ; 10 in. aperture.
	159	....	.....	Not found.
163	159	7 9	.....	
164	....	7 12	Yellow	
165	400	1 10	.....	Definition good.

Double Stars observed and

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							h. m.	° ′	° ′			
	17	2	76	Sirius	R.	..	6 40	16 33	54 47	7	11·54	7
	7	3	76	,,	R.	..	,,	,,	55 14	6	10·37	6
	5	4	76	,,	R.	..	,,	,,	55 5	6	12·58	6
	2	1	80	,,	R.	..	,,	,,	48 47	10	10·55	10
	9	1	80	,,	R.	..	,,	,,	.....	..	....	..
166	12	3	79	3889	..	H.	6 40	50 20	266 10	10	43·80	10
167	20	1	73	3892	R.	..	6 40	81 0	.....	..	.....	..
	13	3	79	,,	..	H.	....	....	.....	..	....	..
	8	3	80	,,	..	H.	6 38	81 7	35 32	10	28·41	10
168	19	3	79	3894	..	H.	6 43	65 24	238 30	10	27·19	10
169	29	1	72	3895	R.	..	6 43	47 40	.....	..	....	..
	17	3	79	,,	..	H.	6 43	47 40	60e	..	....	..
170	6	3	73	3898	R.	..	6 49	56 3	128 47	6	16·90	6
171	24	3	79	3900	..	H.	6 49	34 4	284 6	10	2·23	10
172	27	2	74	3906	R.	..	6 54	55 26	223 15	4	19·29	4
173	20	4	81	3909	..	H.	6 55	47 15	276 47	6	7·96	6
174	25	3	79	3911	..	H.	6 54	76 42	43 45	10	21·39	10
175	19	3	80	3919	..	H.	6 59	35 11	257 26	10	10·40	10
176	20	1	73	3920	R.	..	6 58	48 56	108 5	6	5·54	6
177	15	3	80	3924	..	H.	6 59	60 44	356 51	10	15·17	10
178	8	3	80	3927	..	H.	6 58	74 15	17 37	10	14·58	10
									156 19	10	3·25	10
179	12	3	79	3928	..	H.	7 1	34 36	286 27	2	34·43	2
									119 24	2	35·45	2
180	13	4	81	3929	..	H.	6 59	71 52	238 17	6	8·28	6
181	6	2	72	After 3930	R.	..	7 1	59 3	57 5	6	2·82	6
182	7	3	80	3931	..	H.	7 2	42 17	40 38	10	73·35	10
183	25	3	79	3932	..	H.	7 1	77 36	232 5	6	8·26	6
	15	3	80	,,	..	H.	....	....	232 55	10	7·67	10
184	20	4	81	3935	..	H.	7 6	49 48	99 3	6	26·07	6
185	16	3	80	After 3936	..	H.	7 7	60 37	26 43	10	4·68	10
186	7	2	72	After 3940	R.	..	7 8	55 22	44 18	8	7·13	7
	24	1	73	,,	R.	..	....	....	45 14	6	6·94	6
	17	3	79	,,	..	H.	....	....	45 50	10	6·93	10
187	7	2	72	3941	R.	..	7 8	60 11	.....	..	....	..
	2	3	78	,,	R.	..	....	....	293 54	10	1·36	10
	17	3	79	,,	..	H.	....	....	270e	..	....	..
	2	4	79	,,	..	H.	....	....	.....	..	....	..
	17	3	80	,,	..	H.	....	....	307 12	4	0·72	10
188	20	4	81	3942	..	H.	7 9	33 27	38 22	6	6·98	6
189	17	3	79	3945	..	H.	7 10	70 17	300 0	10	13·33	10
	8	3	80	,,	..	H.	....	....	299 31	10	12·89	10
190	4	4	81	3947	..	H.	7 13	46 2	267 18	6	6·93	6
191	5	4	81	3951	..	H.	7 14	50 48	73 47	6	7·17	6
192	22	4	81	3955	..	H.	7 15	65 58	32 12	6	25·68	6
193	5	4	81	3956	..	H.	7 18	48 17	163 32	6	7·31	6
194	1	4	79	3957	..	H.	7 18	35 40	195 10	10	6·89	10
195	12	3	73	After 3959	R.	..	7 17	52 3	16 20	5	9·80	5
196	1	4	79	3960	..	H.	7 18	48 18	156 35	10	22·75	10
197	19	2	74	3962	R.	..	7 19	56 32	103 10	4	9·27	4
198	21	3	79	3966	..	H.	7 21	37 2	141 38	10	6·57	10

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
	280	1 9	.....	Clark's companion.
	200	....	.....	Aperture, 8 inches; small star appears a hard disc outside the rays of Sirius.
	180	....	.....	9 inches aperture; definition splendid, but getting bad towards last measures.
	250	....	.....	Clark's companion brighter than distant one, and clear of rays from Sirius: Sirius diameter about $\frac{1}{3}$ of the distance of star.
	....	....	.....	Examined Sirius, definition fair; distant companion easy, but Clark's companion is very difficult, and looks much smaller than it did on January 1st, and is now in the rays from the large star.
166	159	7 9	....	
167	....	9 9	.....	Seen; no change apparent; not measured.
	159	....	.....	Not found; haze came over.
	159	9 9	.....	Bright wires.
168	159	8 11	.....	
169	....	....	.....	Not found.
	159	8 13	.....	Seen; won't bear light.
170	150	9 9	.....	10 magnitude star south following.
171	159	6 11	.....	
172	....	$9\frac{1}{2}$ 10	.....	
173	159	9 11	.....	
174	159	7 11	.....	
175	159	8 9	.....	
176	....	9 9	Both bluish	Pretty; well defined.
177	159	10 11	.....	
178	159	9 9	.....	
179	159	5 7 5 12 5 15	....	Quadruple. See diagram.
180	159	8 11	.....	
181	....	$6\frac{1}{2}$ 7	.....	
182	159	7 8	.....	
183	159	8 11	.....	
	159	8 10	.....	
184	159	9 10	.....	
185	159	10 10	.....	
186	....	8 8	Both very light yellow	Stars very steady; definition middling.
	....	8 8	Both yellow	12 magnitude star south following.
	159	8 8	.....	
187	150	9 $9\frac{1}{2}$	.....	Seen in glimpses with 150; southerly wind spoiled definition.
	260	9 $9\frac{1}{2}$	.....	Aperture, 8 inches; definition, bad; observations, middling and very difficult; double forms north angle of triangle.
	159	....	.....	Seen; elongated.
	159	....	.....	Seen.
	333	8 $8\frac{1}{2}$	.....	
188	159	11 11	.....	
189	159	5 8	.....	
	159	4 6	.....	
190	159	8 10	10 m. blue	
191	159	9 10	....	
192	159	9 10	.....	
193	159	9 10	.....	
194	159	8 9	.....	
195	150	7 $7\frac{1}{2}$	Both yellow	Coarse double, about 12 magnitude north following, to which it points.
196	159	7 9	.....	
197	....	8 $8\frac{1}{2}$	.....	H. magnitudes 8-10, now 8-$8\frac{1}{2}$.
198	159	7 8	.....	

Double Stars observed and

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							h. m.	° ′	° ′			
240	18	4	79	4073	..	H.	....	....	183 55	10	1·95	10
241	8	4	80	4075	..	H.	8 13	65 58	263 54	10	3·62	10
242	16	4	79	After 4076	..	H.	8 15	44 39	146 29	10	4·90	10
243	9	5	81	4077	..	H.	8 14	62 29	303 23	6	15·27	6
244	23	4	79	4080	..	H.	8 16	46 44	37 17	10	5·37	10
245	9	5	81	4082	..	H.	8 14	49 53	270 2	6	10·99	6
246	8	4	80	4084	..	H.	8 15	58 48	267 41	10	2·88	10
247	23	4	79	4085	..	H.	8 16	36 5	.....	..	....	..
248	28	4	79	4087	..	H.	8 18	40 35	308 53	10	1·28	10
249	10	5	81	4089	..	H.	8 19	44 28	270 56	6	13·54	6
250	16	4	80	4090	..	H.	8 19	42 33	11 57	10	19·20	10
251	10	5	81	4093	..	H.	8 23	38 41	122 33	6	7·87	6
252	10	5	81	4094	..	H.	8 22	35 8	218 19	6	16·76	6
253	21	3	71	4104	R.	..	8 25	47 30	240 22	4	3·96	4
									88 30	4	18·29	4
	21	3	72	„	R.	..	....	....	241 55	4	4·48	4
									39 0	2	18·93	2
	23	3	78	„	R.	..	....	....	240 47	10	3·56	10
									39 0	2	18·23	2
	28	4	79	„	..	H.	....	....	239 6	10	3·27	10
									37 48	10	18·25	10
	10	6	80	„	..	H.	....	....	244 9	6	3·04	6
									41 29	4	18·52	4
254	13	3	71	After 4104	R.	..	8 25	44 23	348 10	6	6·26	6
	21	3	71	„	R.	..	....	....	348 4	5	4·92	5
	21	4	79	„	..	H.	....	....	348 31	10	3·75	10
255	6	5	81	4106	..	H.	8 27	36 18	143 1	6	8·00	6
256	18	4	79	4109	..	H.	8 27	76 0	127 14	10	25·98	10
257	21	4	79	4111	..	H.	8 30	49 30	106 38	10	9·19	10
258	13	5	81	4112	..	H.	8 31	48 23	26 52	6	8·50	6
259	6	5	81	4116	..	H.	8 33	47 1	0 51	6	7·26	6
260	30	4	79	4119	..	H.	8 33	49 0	223 11	10	9·69	10
261	1	5	79	4122	..	H.	8 35	45 47	154 20	10	10·10	10
262	7	2	72	4125	R.	..	8 35	62 29	233 40	6	8·04	6
263	28	2	72	4126	R.	..	8 37	52 30	30 2	6	16·53	6
264	14	2	73	4128	R.	..	8 36	59 53	39 38	6	2·28	6
265	6	3	73	4130	R.	..	8 37	57 3	224 59	6	4·03	6
266	5	4	72	4134 θ Volantis	R.	..	8 39	69 57	.....	..	55e	..
267	12	3	72	4140	R.	..	8 42	58 17	289 56	4	4·51	4
									222 34	2	60·91	2
									359 36	2	51·55	2
	21	4	79	„	..	H.	....	....	290 32	10	4·68	10
	10	5	81	„	..	H.	....	....	291 32	6	3·71	6
268	12	3	72	4142	R.	..	8 44	57 8	226 33	6	4·14	6
269	23	4	79	4144	..	H.	8 45	35 27	313 7	10	2·17	10
270	19	2	74	4145	R.	..	8 45	53 33	255 24	4	5·80	4
271	19	2	74	4148	R.	..	8 47	53 39	112 28	4	6·46	4
272	30	4	79	4155	..	H.	8 51	60 58	.....	..	....	..
	16	4	80	„	..	H.	....	....	.....	..	....	..
273	5	4	72	After 4156	R.	..	8 54	55 3	230e	..	15e	..
274	5	4	72	4160	R.	..	8 54	58 47	73 28	4	40·40	4
275	5	4	72	4165	R.	..	8 57	51 42	.....	..	....	..
276	22	4	80	4176	..	H.	9 2	41 38	.....	..	....	..
277	30	4	79	4178	..	H.	9 2	57 22	.....	..	....	..
278	16	4	80	4181	..	H.	9 3	54 15	.....	..	....	..
279	26	4	80	4185	..	H.	9 5	63 37	241 29	6	9·73	6
280	7	5	79	4188	..	H.	9 8	43 7	285 23	10	2·43	10
281	14	5	79	4190	..	H.	9 9	57 28	21 29	2	7·73	2
282	25	5	81	4192	..	H.	9 10	49 51	9 58	6	25·83	6
283	8	5	79	4195	..	H.	9 12	64 23	62 36	10	15·80	10

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
240	159	8 8½	.....	
241	159	10 10	.....	
242	159	8 8	.....	
243	159	10 11	.....	Another in field with this.
244	159	9 9	.....	
245	159	10 11	.....	Definition bad.
246	159	10 10	.....	
247	159	....	.....	Not seen.
248	159	8 8	.....	Herschel's companions 14 and 15 magnitudes not seen
249	159	10 11	.....	
250	159	8 10	.....	
251	159	8 8	.....	
252	159	9 10	.....	
253	....	9	Yellow and blue	Triple.
			Yellow and blue	
	....	6 8	Yellow and whitish..	Triple.
	....	6 10	Whitish yellow and blue	
	....	6 8	Bright yellow.	
	....	6 10	10m. white.	
	159	6 9	.....	
	159	6 11	.....	
	159	8 9	.....	
	159	8 11	.....	
254	....	6 10	Yellow and white....	See diagram. A third star 30° east.
	....	....	Yellow and white.	
	159	6 9	.....	
255	159	8 10	.....	Herschel's position 138·8°, and distance 18·00″.
256	159	8 9	.....	
257	159	9 11	.....	
258	159	9 9	.....	
259	159	8 9	.....	
260	159	8 11	.....	
261	159	9 9	.....	Another in field a little south.
262	150	5 10	Yellow and blue	Large star ill-defined; think several small stars near
263	....	7 11	White and light yellow	One of a cluster; definition bad.
264	230	7 8	.....	
265	....	8 10	.....	Fine double; definition bad.
266	....	5½ 9	.....	Seen; too ill-defined to measure.
267	....	7 7	Both straw-yellow..	Definition middling. See diagram.
	....	7 11	.....	
	....	7 11	.....	
	159	8 8	.....	Foggy night.
	159	8 8	.....	
268	....	7 9	Pale yellow.....	Definition only middling; probably the same as 4130
269	159	7 11	.....	
270	....	9 9	.....	A small star follows about 8 seconds of time.
271	....	8 9	.....	
272	159	11 11	.....	Seen; too ill-defined to measure.
	159	....	.....	Seen; south star seems nebulous.
273	....	7 8	Red	About same angle; very small star: distance 15″ and angle 230°, with larger, which is red.
274	....	6 7½	Both white.....	
275	....	6 8	.....	Seen, but too close to measure to-night; definition bad.
276	159	9 9	.....	Seen; not measured.
277	159	6 13	.....	Seen; not measured.
278	159	11 11	.....	Seen; not measured.
279	159	9 9	.....	
280	159	7 8	.....	
281	159	7 12	.....	
282	159	9 9	.....	
83	159	9 9	.....	

DOUBLE Stars observed and

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							h. m.	° ′	° ′			
283	6	5	80	4195	..	H.	9 11	64 27	62 11	4	16·25	4
284	23	5	81	4198	..	H.	9 14	39 58	178 20 180 35	6 6	8·43 22·74	6 6
285	23	5	81	4203	..	H.	9 17	69 18	16 41	6	10·46	6
286	19	5	79	4209	..	H.	9 21	47 45	337 14	10	25·38	10
287	23	4	79	4210	..	H.	9 21	67 0	236 34	10	3·02	10
288	29	2	72	4211	R.	..	9 21	85 10	.....	..	....	..
289	7	4	74	4213	R.	..	9 23	61 25	325 25	3	9·06	3
	3	5	79	,,	..	H.	....	....	327 21	10	8·58	10
290	23	3	72	4214	R.	..	9 23	78 8	191 43	4	9·64	4
291	23	5	81	4216	..	H.	9 24	69 26	388 56	6	13·78	6
292	20	5	79	4218	..	H.	9 28	35 56	26 53	2	5·46	2
293	29	2	72	4220	R.	..	9 30	48 28	202 54	3	....	..
	30	4	79	,,	..	H.	9 30	48 28	205 22	10	1·58	10
294	23	3	72	4226	R.	..	9 32	77 44	.....	..	....	..
295	23	3	72	4230	R.	..	9 34	77 30	.....	..	....	..
296	26	4	71	4232	R.	..	9 35	57 3	302 48	5	11·16	5
	19	5	79	,,	..	H.	....	....	303 13	10	10·46	10
297	28	4	79	4235	..	H	9 37	50 36	88 13	10	4·66	10
298	23	5	79	4248	..	H.	9 42	69 16	319 30	10	10·12	10
299	28	4	79	4249	..	H.	9 44	34 27	126 2	10	4·03	10
300	23	5	79	4251	..	H.	9 44	60 30	314 35	10	12·09	10
301	22	4	71	4252	R.	..	9 45	64 30	125 24	7	4·90	7
	29	6	80	,,	R.	..	....	....	124 22	2	5·18	2
302	17	4	71	4258	R.	..	9 46	75 20	160 31	6	9·01	6
	30	4	79	,,	..	H.	....	....	159 25	10	8·39	10
303	7	5	79	After 4264	..	H.	9 50	44 42	235 34	10	5·01	10
	2	6	81	,,	..	H.	9 49	44 47	230e	..	....	..
304	24	3	71	4265	R.	..	9 49	79 56	229 20	7	13·10	7
	16	4	80	,,	..	H.	9 47	80 6	227 45	10	13·13	10
305	20	5	79	4269	..	H.	9 52	68 38	213 15	10	8·78	10
306	17	4	71	4272	R.	..	9 54	85 28	87 43	6	15·50	6
	8	3	72	,,	R.	..	....	....	88 17	4	15·04	4
	13	5	79	,,	..	H.	....	....	268 36	10	15·56	10
307	13	5	79	4281	..	H.	9 59	79 49	.....	..	....	..
308	28	2	72	4283	R.	..	10 0	51 12	178 54	6	8·24	6
	5	4	72	,,	R.	..	....	....	177 26	6	8·08	6
309	16	4	80	4288	..	H.	10 3	75 29	289 59	10	31·83	10
310	20	3	72	4292	R.	..	10 6	65 13	.....	..	..	..
311	21	6	81	4297	..	H.	10 7	54 38	305 17 120e	6 ..	9·76 20e	6 ..
312	27	5	79	4301	..	H.	10 10	65 9	23 41	10	6·61	10
313	24	3	73	4306	R.	..	10 15	64 4	137 47	4	2·88	4
	7	5	80	,,	R.	..	....	....	.....	..	..	..
314	24	3	71	4310	R.	..	10 12	83 30	273 50	4	3·90	4
	7	6	81	,,	..	H.	....	....	270 26	6	2·99	6
315	13	5	79	4312	..	H.	10 17	47 21	264 52	10	30·09	10
316	7	5	79	4314	..	H.	10 17	66 55	12 14	10	18·59	10
317	7	6	81	4323	..	H.	10 24	61 58	219 46	6	21·89	6
318	4	5	80	4324	..	H.	10 25	46 50	63 48	4	7·62	4
	2	6	81	,,	..	H.	....	....	66 17	6	7·24	6
319	7	6	81	4327	..	H.	10 26	53 51	352 4	6	113·07	6
320	7	6	81	4328	..	H.	10 26	51 18	105 50	6	18·72	6
321	19	5	79	After 4328	..	H.	10 27	44 25	36 19	10	13·09	10
322	21	3	73	4329	R.	..	10 26	53 4	63 41	4	21·89	4
	13	6	81	,,	..	H.	....	....	71 40	6	23·43	6
323	23	5	79	4335	..	H.	10 29	69 34	217 2	10	7·56	10
324	21	3	73	4341	R.	..	10 34	54 50	.....	..	..	..

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
283	159	10 11	.....	
284	159	10 10	.....	The two southern stars. } See diagram.
	159	10 10	.....	The two extremes. }
285	159	9 9	.....	Another pair in the field north of this.
286	159	8 9	.....	Triple; 3rd star about Herschel's position and distance.
287	159	9 11	.....	
288	....	6 10	.....	Not divided; definition bad.
289	....	7 10	.....	Clouds stopped observations.
	159	6 10	.....	
290	....	9 9½	.....	Very pretty; well defined.
291	159	10 11	.....	Very faint.
292	159	7 12	.....	
293	....	6 7	.....	A beautiful double star.
	159	7 7	.....	
294	....	9 9	.....	Seen, about the same position; not measured.
295	....	10 13	.....	A and B not more than 10 and 13 magnitudes; C not seen.
296	230	9 9	White	Clouds about.
	159	8½ 9	.....	
297	159	9 9	.....	
298	159	9 10	.....	
299	159	8 8	.....	
300	159	9 10	.....	
301	230	3 9	.....	Fine, clear, E. wind; magnitudes uncertain.
	300	3 9	.....	Another pair in the field with this, south following.
302	....	9 9	Both white-yellow.	
	159	9 9	.....	
303	159	7 9	.....	
	....	....	.....	
304	....	9 9	.....	
	159	8 9	.....	
305	159	8 9	.....	
306	....	8 8	Yellow.	
	....	8 8	Both white.	
	159	7 7	.....	
307	159	9 10	.....	Seen; too faint to measure.
308	....	8 9	Both white.	
	....	7 8	Both white.	
309	159	8 8	.....	
310	....	6 11	.....	Seen; clouds prevented measures.
311	159	9 10 11	.....	Triple. See diagram.
312	159	10 10	.....	
313	150	7 7	Both yellow	Very beautiful and well defined.
	....	....	.....	Seen; not measured. There is no double at 63° 36′ S., nor at 50 seconds following it.
314	....	9 9½	Both yellow	Definition fair.
	159	9 10	.....	
315	159	7 12	.....	
316	159	8 8	.....	
317	159	10 10	.....	
318	159	9 9½	.....	
	159	10 10	.....	
319	159	8 8	.....	
320	159	10 11	.....	
321	159	6 6	.....	
322	150	5½ 9	Yellow and brick-red	
	159	5 9	.....	
323	159	9 9	.....	
324	....	5 6½	Straw-yellow and greenish blue.	Glimpses of several minute points near this.

DOUBLE Stars observed and

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							h. m.	° ′	° ′			
325	26	5	71	B 3127	R.	..	10 35	58 34	19 8	2	15·19	2
	26	6	71	,,	R.	..	....	....	20 50	4	14·16	4
326	6	6	79	4351	..	H.	10 38	60 38	173 37	10	12·09	10
327	26	4	71	4356	R.	..	10 39	58 56	118 10	2	1·95	2
									286 23	2	10·67	2
328	5	6	79	4356	..	H.	10 39	58 56	145 28	10	2·19	10
329	9	6	79	1st after 4359	..	H.	10 39	58 57	105 25	10	12·46	10
330	9	6	79	4360	..	H.	10 39	58 57	114 2	10	1·58	10
331	17	6	81	4362	..	H.	10 40	43 9	303 17	6	24·99	6
332	7	5	79	4367	..	H.	10 41	56 18	142 15	10	12·20	10
333	13	6	79	4373	..	H.	10 43	40 54	337 3	10	12·66	10
334	17	6	81	4376	..	H.	10 43	69 54	131 51	6	17·05	6
335	13	5	79	4378	..	H.	10 47	59 18	345 5	10	31·10	10
336	10	6	79	4381	..	H.	10 49	38 12	41 20	10	25·44	10
337	18	4	71	4383	R.	..	10 50	70 5	275 16	7	0·79	7
	22	4	71	,,	R.	..	....	....	.....	..	....	..
	14	5	73	,,	R.	..	....	....	279 31	6	2·06	6
	19	5	79	,,	..	H.	....	....	283 6	10	1·15	10
338	18	4	71	4390	R.	..	10 53	82 34	.....	..	....	..
339	9	6	79	4392	..	H.	10 53	70 42	159 28	10	24·81	10
340	20	5	79	4393	..	H.	10 53	68 25	132 41	10	8·45	10
	11	6	79	,,	..	H.	....	....	129 2	10	8·15	10
341	25	4	73	4397	R.	..	10 57	59 11	.....	..	....	..
342	20	6	81	4398	..	H.	10 56	56 41	249 40	6	7·50	6
343	6	6	79	4399	..	H.	10 59	59 56	133 6	10	8·34	10
344	22	4	71	4409	R.	..	11 2	41 58	.....	..	....	..
	19	5	79	,,	..	H.	....	....	.....	..	1·15e	..
	6	6	79	,,	..	H.	....	....	.....	..	....	..
	17	6	79	,,	..	H.	....	....	272 42	10	1·80	10
345	27	6	81	4417	..	H.	11 8	54 51	148 59	6	17·42	6
346	10	6	79	4421	..	H.	11 11	47 15	.....	..	....	..
347	10	6	79	4423	..	H.	11 11	45 14	274 37	10	1·71	10
	5	5	80	,,	R.	..	....	....	273 22	6	2·19	6
348	3	5	71	4425	R.	..	11 14	63 54	.....	..	....	..
	13	5	71	,,	R.	..	....	....	.....	..	....	..
	14	5	73	,,	R.	..	11 14	63 54	.....	..	....	..
349	1	7	81	4431	..	H.	11 17	54 28	226 41	6	9·46	6
350	3	5	71	4432	R.	..	11 18	64 22	292 20	6	2·55	6
	14	5	73	,,	R.	..	....	....	294 23	6	3·14	6
	3	6	79	,,	..	H.	....	....	292 16	10	1·80	10
351	27	6	81	4434	..	H.	11 20	54 40	232 6	6	11·18	6
352	2	6	71	4439	R.	..	11 23	42 3	166 22	4	13·26	4
	21	3	73	,,	R.	..	....	....	.....	..	....	..
	10	6	79	,,	..	H.	11 23	42 7	168 11	10	13·26	10
353	30	5	72	4440	R.	..	11 24	77 51	.....	..	....	..
354	1	7	81	4441	..	H.	11 24	55 14	174 25	6	8·36	6
355	13	6	79	4453	..	H.	11 28	48 50	.....	..	15 e	..
356	13	6	79	4459	..	H.	11 28	48 45	.....	..	....	..
357	9	6	74	4460	R.	..	11 34	57 4	176 40	6	9·00	6
	6	6	79	,,	..	H.	....	....	176 31	10	8·19	10
358	3	5	71	4462	R.	..	11 34	82 23	.....	..	....	..
359	29	4	80	4467	R.	..	11 37	46 38	142 48	..	18 e	..
360	3	5	71	4468	R.	..	11 37	82 23	153 21	3	20·10	3

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.		Colours.	Remarks.
325	....	5½	7½	Bright yellow and sky blue.	Fine, clear. B=Brisbane.
	159	5½	7	Yellow and blue	
326	159	8	9	.....	
327	159	....		.....	In 7 Argus, cluster triple.
328	159	8	10	.....	
329	159	9	10	.....	The 10th magnitude star in these two pairs is the same.
330	159	10	10½		
331	159	9	9	.....	
332	159	10	10	.....	
333	159	9	10	.....	Angle 111° more than Herschel's. Is it in motion. (?)
334	159	9	10	.....	
335	159	7	10	.....	
336	159	8	9	.....	
337	159	7	8	.....	Divided with No. 2 (159); tried 580 to measure distance; distance = diameter of one of the wires = 0·785.
	....	....		.....	Tried wire on it for distance; thicker wire = distance from centre to centre, the other wire too thin.
	333	7	8	.....	Distance unsatisfactory.
	159	6	8	.....	
338	....	....		.....	Not found.
339	159	8	8	.....	
340	159	7	9	.....	
	159	8	10	....	
341	....	11	11	.....	Seen; too small to measure to-night, hazy; definition middling.
342	159	9	10	.....	
343	159	10	10	.....	
344	230 & 580	5	9	.....	Seen; could not measure.
	159	....		.....	Seen; not measured.
	159	5	9	.....	Seen; too ill-defined to measure.
	159	6	8	.....	
345	159	9	10	.....	
346	159	6	13	.....	Seen; not measured.
347	159	9	9	.....	
	....	9	9	.....	Looked carefully at all the stars near; this is the only double; Herschel must have seen this twice.
348	230	7	0	.....	Not divided; definition not first-rate.
	159 & 230	7	0	.....	Not divided; position seems wrong, but no other 7 magnitude star nearer than Herschel's 4432.
	....	....		.....	Not seen.
349	159	10	11	.....	
350	230	6	7	Faint greenish yellow	Divided with power 100, seen double with 150, measured with 230.
	140	6	8	Both straw-yellow.	
	159	6	9	.....	
351	159	10	10	.....	
352	....	6	8½	Both faint yellow....	Large star round disc.
	....	6	9	Ruddy	Small star, ruddy; cannot divide the large star; definition not good.
	159	6	9	.....	
353	....	7	0	.....	Companion not seen.
354	159	9	11	.....	
355	159	11	11	.....	Clouds prevented observations.
356	159	10	10	.....	Seen; not measured.
357	....	8	9	Both white.	
	159	7	9	.....	
358	....	9	10	.....	Seen in field with Herschel's 4468; not measured
359	....	10	11	.....	Seen; no measures.
360	....	7	11	Yellow and blue.	

Double Stars observed and

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							h. m.	° ′	° ′			
	20	5	80	4468	R.	..	11 33	82 26	140 e	..	24 e	..
360a	3	6	80	4475	R.	..	11 43	60 55	310 e	..	3½ e	
	1	8	81	,,	..	H.	11 37	82 26	150 e	..	....	..
361	6	6	72	4480	R.	..	11 49	53 59	.....	..	....	..
362	13	6	79	4483	..	H.	11 52	70 42	108 26	10	10·34	10
363	21	3	72	4486 ε Chamæleontis	R.	..	11 53	77 32	.....	..	2 e	..
	6	6	72	,,	R.	..	..	..	178 58	4	1·47	4
	6	4	74	,, ,,	R.	..	..	..	180 13	6	1·88	6
364	13	6	79	4487	..	H.	11 54	36 11	126 56	10	5·11	10
365	12	5	71	4490	R.	..	12 0	85 2	144 8	5	25·67	5
	10	6	79	,,	..	H.	..	..	145 29	10	25·14	10
366	19	4	71	4498	R.	..	12 1	65 2	60 7	5	8·88	5
367	16	6	79	4502	..	H.	12 2	75 50	358 38	10	13·89	10
368	21	3	72	4504	R.	..	12 9	82 41	.....	..	....	..
369	5	6	79	4507	..	H.	12 6	44 14	179 11	10	12·94	10
370	20	5	72	After 4507	R.	..	12 8	45 2	244 12	6	3·86	6
	11	6	79	,,	..	H.	12 8	45 7	246 13	10	2·49	10
371	18	7	81	4508	..	H.	12 9	55 13	33 32	6	23·71	6
372	13	6	79	4510	..	H.	12 9	35 50	320 e 60 e	..	....	..
373	2	7	79	4511	..	H.	12 11	55 4	295 42	10	8·45	10
374	8	7	81	4518	..	H.	12 17	40 46	206 56	6	9·49	6
375	22	5	71	4521	R	..	12 19	57 27	.....	..	....	..
376	25	4	71	4521 α Crucis	R.	..	12 20	62 26	120 53 201 50	5 2	5·62 89·92	5 2
	16	5	71	,, ,,	R.	..	,,	,,	121 5 202 10	4 6	5·52 90·13	4 6
	3	6	71	,, ,,	R.	..	,,	,,	118 0	11	5·13	11
	13	7	71	,, ,,	R.	..	,,	,,	118 57 201 39	6 2	5·09 89·36	6 2
	6	6	72	,, ,,	R.	..	,,	,,	120 5	4	5·47	4
	3	3	76	,, ,,	R.	..	,,	,,	117 27	6	5·34	6
	6	6	79	,, ,,	..	H.	,,	,,	117 21	9	4·75	10
377	20	5	72	4522	R.	..	12 19	68 48	67 16	6	12·99	6
	2	6	74	,,	R.	..	..	..	66 46	6	13·02	6
378	22	5	71	4525	R.	..	12 24	57 9	.....	..	....	..
	9	6	71	,,	R.	..	..	..	.....	..	....	..
	7	6	80	,,	R.	..	12 28	57 13	51 13	2	25·29	2
379	9	6	71	4526 γ Crucis	R.	..	12 23	56 29	35 9	4	100·67	4
	17	6	79	,, ,,	..	H.	..	..	34 40	10	101·98	10
380	7	7	81	4534	..	H.	12 32	57 25	282 24	6	14·84	6
381	22	5	71	4539 γ Centauri	R.	..	12 35	48 18	3 50	8	1·18	8
	14	5	73	,, ,,	R.	..	..	..	4 13	7	2·29	7
	6	4	74	,, ,,	R.	..	..	..	1 38	5	1·61	6
	12	6	80	,, ,,	R.	..	..	..	1 16	9	1·39	9
382	16	6	79	4540	..	H.	12 35	72 10	167 35	10	11·07	10
383	25	4	71	4544	R.	..	12 40	78 48	.....	..	....	..
	22	5	71	,,	R.	..	..	..	.....	..	....	..
	9	6	71	,,	R.	..	..	..	.....	..	....	..
384	4	7	79	4545	..	H.	12 38	74 35	192 1	10	8·95	10
385	5	6	73	4550	R.	..	12 40	66 23	98 11	4	13·12	4
	16	7	80	,,	R.	..	..	..	94 55	4	13·99	4
386	11	7	79	4555	..	H.	12 47	56 34	17 22	10	34·30	10
387	19	7	81	4561	..	H.	12 53	77 13	45 56	6	19·26	6
388	15	7	81	After 4561	..	H.	12 53	55 19	126 43	6	16·25	6
389	2	7	79	4562	..	H.	12 53	47 59	73 16	10	11·07	10

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
	250	7 10	Yellow and blue	Position and distance estimated; another double in the field with this.
360a	100	9 10		
	159	7 14	.....	Small star just visible in dark field. See R. 175.
361	....	9 0	.....	No companion found; four stars about 2″ apart.
362	159	11 11	.....	Light wires.
363	230	6 10	.....	Clearly divided; not measured.
	....	6 6½ or 7	.....	Sensibly constant since 1835.
	323	6 6½	.....	Position very difficult and unsatisfactory.
364	159	10 10	.....	
365	....	7 10	Yellow and blue	This is almost exactly the same as 4468 in colour; distance and angle very striking.
	159	7 10	.....	
366	....	7 9	.....	
367	159	10 11	.....	
368	....	....	.....	Not found.
369	159	9 10	.....	Herschel's position angle, 227°.
370	....	5 7	Yellow.	
	159	5 7	.....	
371	159	9 10	.....	
372	159	9 10 / 9 13	.....	Doubtful if this is H. 4510.
373	159	10 10	.....	
374	159	8 10	.....	
375	....	9 9	Both red.	
376	150 / 150	2–2½–5	.....	
	....	....	White.	See diagram.
	....	....	White and yellow.	
	230	....	.....	Discs seem equal, if any difference *b* is a shade less than *a*; definition moderate; hazy.
	230 / 230	....	.....	Definition pretty good; stars dancing a good deal.
	....	2 2½	.....	Thick fog, and stars dancing.
	200	....	.....	Cloudy 6 hours past meridian; definition fair; 8 inches aperture *a* ½ larger than *b*.
	159	2 2½	.....	
377	....	8 9	.....	
	150	8 9	.....	Fine clear night.
378	....	10 11	.....	Not found; H gives no description.
	....	....	.....	Not found.
	....	10 11	.....	
379	....	....	Pale yellow. / Faint green.	
	159	2 5	.....	
380	159	10 10	.....	
381	333	4 4	.....	Very fine definition; seen double with 150; measured with No. 4; two round clear discs.
	333	4 4	.....	Definition very bad; both stars are one blurred patch.
	333	....	.....	Difficult; stars very unsteady; elongated with 150 power.
	800	4 4	.....	Definition good, but stars rather unsteady.
382	159	9 9	.....	
383	....	9 9	.....	Not made out.
	....	....	.....	Not seen.
	....	....	.....	No companion found; definition moderate.
384	159	9 9	.....	
385	150	8 9	.....	Fine and clear, after a heavy shower.
	200	7 9	.....	No other pair found near this.
386	159	5 6	.....	
387	159	11 11	.....	
388	159	9 9	.....	
389	159	9 9	.....	

DOUBLE Stars observed and

No. of star in this catalogue.	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R	Observer's initial. H.	Approximate R.A.	Declination South.	Position angle in degrees and minutes.	No. of observations of position angle.	Distance in seconds of arc.	No. of observations of distance.
							h. m.	° ′	° ′			
390	13	5	71	4567	R.	..	13 0	47 48	.....	..	....	..
	9	6	71	,,	R.	..	.....	.....	50e	..	18e	..
391	4	6	72	4568 θ Muscae	R.	..	13 1	64 38	182 44	6	5·35	6
	16	6	79	,,	..	H.	.....	.....	185 17	10	5·03	10
392	5	6	73	4569	R.	..	13 1	56 2	239 36	6	4·75	6
393	15	7	81	4570	..	H.	13 1	36 37	231 45	6	18·10	6
394	8	7	79	4571	..	H.	13 5	34 36	268 15	10	23·27	10
395	13	5	71	4576	R.	..	13 8	56 28	129 41	6	5·40	6
	20	6	73	,,	R.	..	.....	.....	130 30	5	6·42	5
	10	6	80	,,	R.	..	.....	.....	128e	..	....	..
396	13	5	71	4577	R.	..	13 10	59 11	220e	..	....	..
	9	6	74	,,	R.	..	.....	.....	236 5 52 5	4 4	12·66 7·42	4 5
397	20	6	71	4579	R.	..	13 13	63 27	95 1	6	4·58	6
	4	7	79	,,	..	H.	.....	.....	97 53	10	4·14	10
	10	6	80	,,	R.	..	.....	.....	97 50	2	4·25	4
	25	6	80	,,	..	H.	.....	.....	100 34	6	3·99	6
398	2	6	71	After 4579	R.	..	13 13	60 21	343 8	2	60·19	2
	10	7	79	,,	..	H.	.....	.....	343 8	10	59·72	10
399	15	6	71	4586	R.	..	13 21	67 17	146 3	2	3·88	2
	2	6	74	,,	R.	..	.....	.....	151 45	6	3·86	6
400	8	7	81	4587	..	H.	13 19	42 26	85 24	6	4·96	6
401	1	6	80	4590	..	H.	13 23	76 56	134 56	10	22·41	10
402	16	7	79	4594	..	H.	13 29	79 58	99 46	10	5·31	10
403	20	7	81	4595	..	H.	13 29	35 5	98 10	6	7·78	6
404	12	5	71	4596	R.	..	13 29	65 7	.....	..	....	..
	9	6	71	,,	R.	..	.....	.....	.....	..	....	..
	14	6	71	,,	R.	..	.....	.....	.....	..	....	..
	28	4	80	,,	R.	..	.....	.....	.....	..	....	..
	5	5	80	,,	R.	..	.....	.....	.....	..	....	..
405	20	6	71	4598	R.	..	13 32	74 31	45 23	7	12·60	5
406	20	6	71	1713 ζ Centauri	R.	..	13 34	54 0	163 39	5	5·25	5
407	22	7	80	4600	..	H.	13 35	48 23	143 51	2	16·58	2
408	2	7	79	4601	..	H.	13 32	39 9	105 4	10	10·57	10
409	20	7	81	4602	..	H.	13 33	45 10	189 31	6	23·19	6
410	22	7	79	4606	..	H.	13 36	58 42	90 46	10	32·33	10
411	25	4	71	After 4612	R.	..	13 41	61 26	34 54	5	12·05	5
	4	7	79	,,	..	H.	.....	.....	34 42	10	11·57	10
412	20	7	81	4614	..	H.	13 41	42 35	280 36	6	12·70	6
413	21	7	79	4615	..	H.	13 42	46 48	256 34	10	8·73	10
414	14	6	71	4617	R.	..	13 45	52 14	289 32	5	18·08	5
	27	6	79	,,	..	H.	.....	.....	.....	..	.....	..
415	26	7	81	4619	..	H.	13 45	47 18	199 12	6	23·56	6
416	10	7	79	After 4624	..	H	13 47	50 11	76 8	10	17·44	10
417	12	6	71	4628 ζ Centauri	R.	..	13 49	46 42	.....	..	.....	..
418	30	6	80	4629	..	H.	13 50	77 54	356 57	6	4·39	6
	6	7	80	,,	..	H.	.....	.....	356 31	6	4·66	6
419	18	6	74	4630	R.	..	13 49	65 4	314 31	6	4·46	6
420	26	7	81	4631	..	H.	13 50	69 49	84 40	6	10·53	6
421	10	7	81	4632	R.	..	13 49	65 5	17 20	6	6·03	6
422	26	7	81	4634	..	H.	....	....	13 40	6	5·74	6

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
390	....	5 0	.....	No companion found.
	....	7 14	.....	Small star faint; seen only in glimpses; not measured.
391	....	7 9	Both white	Stars steady, but ill-defined.
	159	7 9	.....	
392	150	8 10	.....	
393	159	9 10	.....	
394	159	7 10	.....	
395	159	7 10	Yellow and blue.	
	....	7 10	.....	Stars bright and clear, but ill-defined; angle observations difficult and unsatisfactory.
	....	7 10	.....	Another double near this R.A. and dec.; position 129° 15′ R. 216.
396	....	9 9	.....	Triple. See diagram.
	....	10 10	.....	All covered by the wire at once, although 11 magnitude star seems a little south of the line; a 10 magnitude star 120e pos. 12″e not mentioned by Herschel.
	....	10 11	.....	
397	159	9 9½	White.	
	159	9 9	.....	Telescope unsteady.
	....	8½ 9	.....	Fine double star.
	159	8 9	.....	
398	....	6 7	.....	
	159	5 7	.....	
399	....	8 10	.....	
	....	8 10	.....	
400	159	10 10	.....	
401	159	6 10	.....	
402	159	10 10	.....	
403	159	9 9	.....	
404	230	8 0	.....	Cannot divide this star.
	159,230, 333	....	.....	Not divided.
	....	9 0	....	Not found; one seen at 64° 16′ declination; position 130° e.; distance, 1″ e. See R 222.
	300	8 0	.....	11½ inches aperture; in Herschel's position is an 8 magnitude star which I cannot divide, but at R.A. 13h. 30m. and dec. 64° 16′ is a double similar to Herschel's.
	....	....	.....	Only one double, here at declination 64° 16; no double in Herschel's position.
405	....	6 13	Yellow	Very difficult.
406	....	6 7	.....	Measures not good. 1713 in Herschel's list of measures, page 257.
407	159	7 9	.....	
408	159	10 10	.....	Atmosphere very unsteady.
409	159	9 10	.....	
410	159	8 9	.....	
411	159	8 9	Red and green.	
	159	8 8½	.....	
412	159	9 10	.....	
413	159	9 9½	.....	
414	....	7 8	.....	Definition bad.
	159	....	.....	Seen; not measured.
415	159	8 10	.....	
416	159	9 9	.....	Telescope unsteady.
417	....	8 0	.....	No companion found.
418	159	9 9½	.....	
	159	10 11	.....	
419	140	8 8½	.....	Well defined.
420	159	11 11	.....	
421	....	6 10	.....	The following and southern of two pairs.
	159	6 11	.....	

Double Stars observed and

No. of star in this catalogue.	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R.	Observer's initial. H.	Approximate R.A.	Declination South	Position angle in degrees and minutes.	No. of observations of position angle.	Distance in seconds of arc.	No of observations of distance.
							h. m.	° ′	° ′			
422	26	7	81	4634	..	H.	13 49	55 24	9 44	6	10·71	6
423	5	7	80	4635	..	H.	13 51	78 13	251 14	6	12·40	6
424	3	7	72	4642	R.	..	13 58	62 52	330e	..	..	..
									10e	..	..	..
425	4	8	81	4645	..	H.	13 59	57 8	202 11	6	12e	..
426	2	7	72	4646	R.	..	14 0	53 8	22 49	4	22·10	4
427	4	8	81	4648	..	H.	14 2	76 46	206 19	6	10·03	6
428	12	5	71	4649	R.	..	14 1	59 10	64 45	5	8·22	5
	28	6	72	,,	R.	..	....	....	.....	..	....	..
	8	7	79	,,	..	H.	....	....	64 23	10	8·02	10
429	29	6	80	4654	..	H.	14 1	66 10	11 4	6	7·57	6
430	9	8	81	4665	..	H.	14 9	42 46	110e	..	18e	..
431	7	6	72	4667	R.	..	14 11	73 0	.....	..	..	..
	11	7	79	,,	..	H.	14 11	73 0	138 15	10	1·60	10
432	28	6	72	4671	R.	..	14 15	79 33	.....	..	..	..
	17	5	73	,,	R.	..	....	....	126 50	6	6·76	6
433	9	8	81	4672	..	H.	14 13	42 35	303 30	6	3·58	6
434	2	6	71	After 4672	R.	..	14 14	57 54	160 19	4	9·91	4
									1 0	2	44·69	2
	9	6	71	,,	R.	..	....	....	158 4	5	9·66	4
									1 45	2	47·05	2
	16	7	79	,,	..	H.	....	....	159 54	10	9·01	10
435	28	6	72	4676	R.	..	14 19	59 6	.....	..	..	..
									262 10	4	20·85	4
	17	6	74	,,	R.	..	....	....	240 41	4	14·05	4
436	12	6	71	4683	R.	..	14 21	61 48	.....	..	12e	..
											15e	..
437	3	7	72	4684	R.	..	14 25	64 21	.....	..	..	..
438	18	6	74	4685	R.	..	14 27	45 38	.....	..	1½e	..
	22	3	82		R.	..	,,	,,	83 22	6	2·21	6
	11	6	80	,,	R.	..	,,	,,	.....	..	2″e	..
439	11	6	80	4690	R.	..	14 29	45 40	23 35	4	19·77	4
440	29	7	79	4691	..	H.	14 35	55 17	272 28	10	11·74	10
441	26	9	70	α Centauri	R.	..	14 32	60 21	21 0	1	9·8	1
	27	9	70	,,	R.	..	,,	,,	21 58	5	10·40	6
	28	9	70	,,	R.	..	,,	,,	22 55	4	10·47	4
	3	10	70	,,	R.	..	,,	,,	22 21	5	10·26	5
	5	10	70	,,	R.	..	,,	,,	22 5	5	10·70	5
	14	10	70	,,	R.	..	,,	,,	20 14	1	9·60	1
	3	6	71	,,	R.	..	,,	,,	22 54	10	10·25	10
	13	7	71	,,	R.	..	,,	,,	25 5	5	10·02	5
	7	6	72	,,	R.	..	,,	,,	25 54	6	9·79	6
	5	7	72	,,	R.	..	,,	,,	25 8	3	9·69	3
	2	5	73	,,	R.	..	,,	,,	28 24	6	9·50	6
	13	6	74	,,	R.	..	,,	,,	30 1	10	7·71	10
	29	6	74	,,	R.	..	,,	,,	30 2	10	8·22	10
	23	5	76	,,	R.	..	,,	,,	33 55	10	4·55	10
	8	6	76	,,	R.	..	,,	,,	32 8	10	4·25	10
	5	7	77	,,	R.	..	,,	,,	72 52	10	2·60	10
	7	7	77	,,	R.	..	,,	,,	72 57	6	3·04	8

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.		Colours.	Remarks.
422	....	7	10	10 m. blue.	△'s angle 0° 0'. h 310° 6.
423	159	11	11	.....	
424	....	8	12	Orange red	Not measured; seems unchanged.
	....	8	16		
425	159	10	11	.....	Two other pairs in the field; Herschel's angle 221·8.
426	150	8	0	Orange red & greenish blue.	Angles only middling.
427	159	10	10	.....	
428	230	8	8	Red	Definition middling.
	....	9½	10	Both red	Hazy night; position appears unaltered.
	159	9	9	Both red.	
429	159	9	10	.....	
430	159	8	12	.....	Seen; not measured.
431	....	9	9	.....	Only a glimpse; seems unaltered; very foggy.
	159	9	9	.....	
432	....	8	9	.....	Seen; night hazy; position appears unaltered.
	....	8	9	.....	Badly defined and hazy.
433	159	4	9	.....	
434	....	6	8	Yellow and greenish.	See diagram.
		6	11		
	159	5	8	Yellow.	
		5	10		
	159	6	8	.....	Herschel's 11 magnitude companion not seen.
435	....	8	9	.....	Too faint to measure to-night.
	140	8	9	.....	Some nebulous light about these stars, but diffused. Herschel appears to have measured 8—9.
	140	8	10	.....	Diagram shows 12 magnitude star, about 260°e position, and about 60″ distant. See diagram.
436	....	10	10	.....	Two separate pairs in the same field, not a triple.
	....	10	11		
437	....	....		.....	No double near this position.
438	140	10	10	.....	Seen well with 140 power; angle seems same as Herschel, but distance cannot be less than 1½″.
	200	10	11	.....	
	100	....		.....	Easily divided with power 100; must be 2″ distance.
439	....	6½	9½	Yellow and blue.....	A very beautiful object.
440	159	9	10	.....	
441	....	1	2	.....	Definition good.
	....	....		.....	Definition good; stars have sharp round discs.
	....	....		.....	Stars very unsteady.
	....	....		.....	Fine clear moonlight.
	....	....		.....	Strong wind, much vibration.
	....	....		.....	
	230	....		.....	
	....	....		.....	Observations only middling, stars dancing a good deal.
	....	....		.....	Very thick fog.
	....	....		.....	Clouds stopped observations.
	333	....		.....	Stars dancing.
	140	....		.....	First look through 11½-inch equatorial; small star looks more yellow than usual.
	140	....		Yellow & dark yellow	Definition good; small star looks a darker yellow than large one.
	180	....		White.....	Stars tremulous and watery; aperture 6 inches.
	544	....		.....	Aperture 4 inches; moderately steady; large star's diameter = 4/3 of the small star.
	450	....		.....	α^2 is ⅓ the size of α^1; aperture 8 inches; stars dancing.
	450	....		.....	Aperture 8 inches; stars dancing.

Double Stars observed and

No. of star in this catalogue.	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R.	Observer's initial. H.	Approximate R.A.	Declination South.	Position angle in degrees and minutes.	No. of observations of position angle.	Distance in seconds of arc.	No. of observations of distance.
							h. m.	° ′	° ′			
	7	7	77	α Centauri	R.	..	14 32	60 21	72 31	8	3·55	8
	20	7	77	,, ...	R.	..	,,	,,	79 27	10	2·09	10
	20	7	77	,, ...	R.	..	,,	,,	78 6	4	2·45	4
	24	7	77	,, ...	R.	..	,,	,,	82 27	4	2·18	4
	24	7	77	,, ...	R.	..	,,	,,	75 56	6	2·16	6
	25	7	77	,, ...	R.	..	,,	,,	75 27	14	2·11	14
	3	8	77	,, ...	R.	..	,,	,,	82 24	6	1·93	6
	6	8	77	,, ...	R.	..	,,	,,	83 1	5	1·93	5
	6	8	77	,, ...	R.	..	,,	,,	82 6	6	1·87	6
	7	8	77	,, ...	R.	..	,,	,,	79 27	7	1·86	7
	18	2	78	,, ...	R.	..	,,	,,	115 10	10	1·66	10
	28	2	78	,, ...	R.	..	,,	,,	116 59	10	1·77	10
	4	3	78	,, ...	R.	..	,,	,,	116 10	20	1·89	19
	20	3	71	,, ...	R.	..	,,	,,	120 59	4	2·16	4
	28	3	78	,, ...	R.	..	,,	,,	122 20	10	1·80	10
	13	4	78	,, ...	R.	..	,,	,,	127 22	10	1·77	10
	5	6	79	,, ...	..	H.	,,	,,	172 33	4	3·79	4
	11	7	79	,, ...	..	H.	,,	,,	174 33	10	3·03	10
	12	6	80	,, ...	R.	..	,,	,,	184 59	10	5·52	10
	13	4	81	,, ...	..	H.	,,	,,	189 53	4	5·07	4
	19	7	81	,, ...	..	H.	,,	,,	190 8	6	7·52	6
442	14	6	71	2nd after 4691 α Circini.	R.	..	14 32	64 26	240 7	4	15·74	4
	1	6	72	,, ...	R.	..	....	....	240 26	6	15·66	6
	16	7	79	,, ...	..	H.	....	....	238 34	10	15·19	10
443	25	7	79	4692.....	..	H.	14 33	42 11	117 16	10	10·34	10
444	2	7	72	4693.....	R.	..	14 34	54 41	22 11	4	6·05	4
445	1	6	72	2nd after 4693	R.	..	14 37	55 3	107 42	3	67·59	3
446	3	7	72	4695.....	R.	..	14 38	74 26	.....	..	..	..
447	4	6	72	4697.....	R.	..	14 39	70 2	.....	..	..	..
	10	7	79	,, ...	..	H.	....	....	136 59	10	14·97	10
448	3	7	72	4698.....	R.	..	14 39	51 52	.....	..	..	..
449	10	7	71	4699.....	R.	..	14 40	58 54	124 46	4	36·89	4
450	4	6	72	4703.....	R.	..	14 43	78 1	.....	..	..	..
451	15	7	81	4706	..	H.	14 43	46 56	216 42	6	6·26	6
452	22	5	71	4707.....	R.	..	14 44	65 55	.....	..	..	..
453	5	6	73	4712.....	R.	..	14 46	54 54	227 18	6	7·04	6
	19	7	81	,, ...	..	H.	....	....	228 14	6	6·35	6
454	19	7	71	4714.....	R.	..	14 48	63 2	144 31	4	22·47	4
455	21	7	79	4715.....	..	H.	14 50	47 30	275 57	10	2·34	10
456	16	7	79	4719.....	..	H.	14 51	58 28	40 18	10	22·95	10
457	8	7	72	4723.....	R.	..	14 53	51 27	166 29	4	5·60	4
458	4	6	72	4723 π Lupi	R.	..	14 57	46 33	100 3	..	0·57	..
	12	6	80	,, ...	R.	..	....	....	99 18	10	0·90	10
	3	7	80	,, ...	R.	..	....	....	.....	..	..	..
	20	7	81	,, ...	R.	..	....	....	.....	..	..	..
459	16	5	71	4734.....	R.	..	15 2	54 52	244e	..	12e	..
460	2	7	72	4739 ζ Lupi	R.	..	15 3	51 40	249 17	4	71·71	4
461	21	7	79	After 4739 κ Lupi	..	H.	15 3	48 18	144 14	10	26·91	10

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
	800	....	.....	
	500	....	.....	Aperture 7 inches; definition rather poor.
	500	....	.....	Aperture 5 inches; clouds stopped observations.
	800	....	.....	Aperture 7 inches; α^2 is $\frac{3}{4}$ the diameter of α^1.
	800	....	.....	Aperture 7 inches; stars dancing and unsteady.
	800	....	.....	Clouds hide α^2 oftener than α^1; α^2 from $\frac{1}{2}$ to $\frac{1}{3}$ less brilliant than α^1; aperture 5 inches; observations good; stars dancing.
	800	....	.....	Aperture 6 inches; definition very good, some dancing.
	800	....	.....	Telescope west.
	800	....	.....	Telescope east.
	800	....	.....	Aperture 5 inches; observations not good.
	800	....	.....	Definition sometimes good, at others bad.
	800	....	.....	Definition fair; aperture 6 inches; small star = $\frac{2}{3}$ diameter of large star.
	800	....	.....	Aperture 8 inches.
	....	....	.....	Bad definition; stopped observations.
	800	....	.....	Aperture 7 inches; definition pretty good; $\alpha^2 = \frac{2}{3}$ of α^1 diameter.
	800	....	.....	Steady definition; full aperture.
	159	....	.....	Diameter of large star 2·75″.
	159	....	.....	
	800	1 1½	Both yellow.	
	159	1 1	.....	The ghost measured as well; pos. 188·52; distance, 5·01; magnitudes, 10 and 10; very hard and well defined.
	580	....	.....	Good observations.
442	....	8 8	White.	
	....	4 8	Faint yellow & orange	Stars moderately steady; very beautiful colours, but not a good night for observations.
	159	4 9		
443	159	9 9		
444	....	8 8	Faint blue.	
445	....	6 7	Yellow and orange....	Very wide double.
446	....	7 11	.....	Not found.
447	....	8 9	.....	Seen; no remarkable change noticed.
	159	8 9	.....	
448	....	5 17	Yellow	Companion just seen in glimpses; 16 or 17 magnitude large star yellow.
449	....	6 10	Yellow and blue	Definition middling.
450	....	8 0	Orange.....	Large star orange; companion not seen.
451	159	9 10	.....	
452	....	....	.....	Not found; foggy.
453	150	8 8	.....	
	159	9 9	.....	
454	....	7 8	.....	Stars steady; definition middling.
455	159	7 8	.....	
456	159	9 9	.....	
457	....	7 11	Yellow and blue.	
458	230	5 5	.....	Elongated with 150 power; night not good for observations; distance = diam. of thick wire.
	800	5 5	.....	A beautiful double star.
	300	....	.....	Clearly divided; 11½ inches aperture.
	100,200, 800.	....	.....	100 power not round, 200 divides it, 800 makes it a wide double.
459	....	5 14	Yellow and blue.	
460	....	4 6	.....	
461	159	5 8	.....	

DOUBLE Stars observed and

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							h. m.	° ′	° ′			
462	1	7	72	4742	R.	..	15 5	75 8	.....	..	..	..
463	8	6	71	4746	R.	..	15 6	58 37	350 18	4	12·81	4
	22	7	79	,,	..	H.	15 6	58 42	.....	..	..	..
464	26	6	71	4747	R.	..	15 8	55 16	141 15	4	6·06	4
465	1	7	72	4751	R.	..	15 9	74 48	123 41	4	5·33	4
466	22	7	79	4752	..	H.	15 10	47 28	129 31	10	22·17	10
467	17	6	74	4753	R.	..	15 10	47 26	163 49	10	1·78	10
468	8	6	71	4757 γ Circini	R.	..	15 13	58 53	93 19	2	0·50	2
	5	6	73	,,	R.	..	....	....	87 49	6	1·31	6
	9	8	81	,,	..	H.	....	....	91 53	6	0·64	6
469	1	6	80	4760	..	H.	15 17	77 5	17 6	10	18·21	10
470	3	7	71	4761	R.	..	15 15	64 57	1 22	4	12·26	4
471	12	8	81	4763	..	H.	15 16	55 4	325 0	6	10·73	6
472	14	7	73	4771	R.	..	15 21	57 40	4 8	6	5·65	6
473	1	7	72	4773	R.	..	15 22	73 37	72 26	4	7·76	4
474	30	5	72	4777	R.	..	15 23	57 0	300 19	6	6·03	6
475	12	8	79	4778	..	H.	15 23	52 35	205 15	10	12·48	10
476	18	6	74	4780	R.	..	15 26	80 10	271 55	6	5·62	6
477	20	6	71	4786 γ Lupi	R.	..	15 27	40 47	.....	..	....	..
	3	7	77	,,	R.	..	,,	,,	270e	..	....	..
	5	7	77	,,	R.	..	,,	,,	.....	..	....	..
	7	7	77	,,	R.	..	,,	,,	.....	..	....	..
	7	8	77	,,	R.	..	,,	,,	.....	..	....	..
	30	7	80	,,	R.	..	,,	,,	270e	..	....	..
	1	9	80	,,	..	H.	,,	,,	.....	..	....	..
	20	7	81	,,	R.	..	,,	,,	.....	..	....	..
478	20	6	71	4787	R.	..	15 32	79 16	304 10	6	10·32	6
	11	7	74	,,	R.	..	....	....	305 16	4	10·46	4
	14	7	80	,,	..	H.	....	....	305 56	6	11·71	6
479	25	8	80	4788 f Lupi	..	H.	15 28	44 34	356 5	6	1·98	6
480	26	7	72	4789	R.	..	15 28	54 8	89 22	5	13·96	5
	25	8	80	,,	..	H.	....	....	89 43	6	12·94	6
481	12	8	81	4790	..	H.	15 33	78 22	.....	..	....	..
482	3	7	72	4792	R.	..	15 34	72 4	110 37	4	8·34	4
..	..	..	..	,,	..	H.	....	....	.....	..	....	..
483	20	6	71	After 4792	R.	..	15 34	57 43	91 55	6	6·75	6
484	10	8	81	4795	..	H.	15 35	58 48	219 20	6	6·76	6
485	2	9	80	4796	..	H.	15 36	58 18	117 44	6	32·51	6
486	25	7	71	4799	R.	..	15 37	65 4	.....	..	....	..
	1	8	71	,,	R.	..	....	....	153 48	6	2·61	6
	12	8	79	,,	..	H.	....	....	154 14	10	1·56	10
487	25	8	80	4800	..	H.	15 36	45 23	189 53	6	6·16	6
488	16	8	81	4801	..	H.	15 42	76 51	160e	..	10e	..
489	25	7	71	4807	R.	..	15 41	54 43	18 48	6	21·39	6
	2	9	80	,,	..	H.	....	....	18 12	6	21·52	6
490	27	8	80	4808	..	H.	15 42	44 4	58 9	6	6·84	6
491	25	7	71	4809	R.	..	15 43	60 20	{ 49 3 { 257 23	1 1	....	..
	31	7	79	4809	..	H.	15 43	60 20	49 13	7	44·23	7
492	1	8	81	4810	..	H.	15 42	46 10	65 35	6	16·38	6
493	27	8	80	4811	..	H.	15 43	42 5	62 36	6	6·93	6
494	27	8	80	4812	..	H.	15 44	37 46	67 53	6	7·83	6
495	1	6	71	4813 κ Circini	R.	..	15 45	59 49	96 50	3	2·62	3
	18	7	71	,,	R.	..	....	....	100 5	10	3·61	10
	1	8	71	,,	R.	..	....	....	99 41	6	3·81	6
	1	9	80	,,	..	H.	....	....	100 28	6	2·66	6

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
462	....	6 0	.....	Companion not found.
463	....	8 11	Yellow.....	*a* and *d* measured line points 2*f* following *g*. See diagram.
	159	....	.....	Seen multiple ; nine stars.
464	....	9½ 9½	.....	Definition middling.
465	....	9 9	.....	Another star south following.
466	159	6 8	.....	
467	230	6 6	.....	Very fine double.
468	333	....	.....	Definition bad ; very difficult.
	333	6 6	.....	Seen well with 150 power.
	590	7 7	.....	Good observations.
469	159	8 10	.....	
470	....	9 9	.....	
471	159	10 10	.....	
472	150	9 9	.....	Bad definition ; though clear night.
473	150	8½ 8½	.....	Definition and steadiness pretty good.
474	....	8 8	Both white	Foggy.
475	159	8 8½	.....	
476	....	10 11	.....	Very difficult, so faint.
477	159,230, 590	4 4	....	Moderately well defined, but not divided.
	450,800, 1200	....	.....	Elongated in direction of motion ; smaller end goes first ; not divided.
	450,1200	....	.....	Not divided ; ill-defined.
	1200	....	.....	Not elongated.
	800,520, 150	....	.....	Not elongated.
	1200	....	.....	Seems elongated ; position about 270.
	580	....	.....	Not elongated with the highest power.
	800	....	.....	Round with various powers up to 800.
478	....	9 10	.....	Another in field with this.
	....	9 10	.....	
	159	7 8	.....	
479	159	5 8	.....	Much cirrus about.
480	....	8 8½	... .	Definition pretty good.
	159	9 9	.....	
481	159	8 11	.....	Seen ; too windy to measure.
482	....	8½ 9½	.....	Very faint.
	....	....	.....	
483	....	7 10	Yellow-blue	Definition very middling.
484	159	8 11	.....	Clouds came over from the westward
485	159	8 8	.....	
486	....	7 7	.....	Definition horrible ; can only see position ; is about same as Herschel's.
	....	7 7	.....	First four observations definition good ; got worse at the last.
	159	7 7	.....	
487	159	9 9	.....	
488	159	9 12	.....	Viewed only ; night cloudy.
489	....	6 9	.....	Two other companions. See diagram.
	159	7 10	.....	Two more companions—14-14 magnitudes.
490	159	11 11	.....	Light wires ; very faint.
491	....	{7 9} {7 9}	.....	Reading of position only.
	159	7 9	.....	Third star 10th mag. ; clouds stopped observations.
492	159	9 10	.....	
493	159	10 10	.....	Light wires.
494	159	10 10½	.....	
495	230, 159	7 9	Pale yellow and green	Definition bad.
	....	6 8	.....	Definition middling, but stars are steady.
	....	6 10	Yellow and blue	Definition bad ; thin clouds about
	159	7 10	.....	

DOUBLE Stars observed and

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							h. m.	° ′	° ′			
496	14	7	73	4815	R.	..	15 45	50 0	7 43	4	1·58	4
497	22	6	72	4816	R.	..	15 50	83 48	.....	..	....	..
498	5	6	73	4819	R.	..	15 49	66 20	.....	..	....	..
499	27	8	80	4822	..	H.	15 51	38 49	90 24	6	7·41	6
500	18	8	79	After 4823	..	H.	15 52	38 5	21 2	10	7·06	10
501	1	9	80	4824	..	H.	15 54	45 56	243 30	6	9·69	6
502	19	7	71	4825	R.	..	15 53	57 26	249 15	5	10·32	5
503	2	9	80	4827	..	H.	15 56	44 3	167 51	6	14·06	6
504	2	8	71	4829	R.	..	15 56	59 44	172 53	6	8·17	6
	8	7	73	,,	R.	..	....	....	173 35	6	8·08	6
505	30	5	72	After 4829 δ Apodis ..	R.	..	16 2	78 21	12 56	4	102·36	4
506	19	8	79	4833	.	H.	16 1	46 1	.....	..	....	..
507	3	8	71	4835	R.	..	16 3	53 55	79 36 161 33	6 6	9·80 8·91	6 6
508	24	8	80	4836	..	H.	16 10	34 35	299 36	6	4·17	6
509	14	8	79	4837	..	H.	16 4	43 23	73 20	10	8·60	10
510	19	8	81	4838	..	H.	16 5	49 50	134 45	6	23·75	6
511	18	8	80	4840	..	H.	16 10	34 35	297 20	6	4·76	6
512	29	8	81	4841	..	H.	16 11	49 54	359 52	6	20e	..
513	3	7	73	4844	R.	..	16 15	59 10	.....	..	....	..
514	18	8	79	4846	..	H.	16 16	48 4	151 25	10	11·46	10
515	13	7	71	4847 ¿ Tri. Aust.	R.	..	16 15	63 43	22 5	6	22·45	6
	4	8	71	,, ,, ...	R.	..	....	....	21 15	4	21·69	4
516	7	6	80	4849	R.	..	16 18	65 48	.....	..	..	..
	19	8	81	,,	..	H.	....	....	149 25	6	15·75	6
517	22	7	80	4850	..	H.	16 19	57 29	.....	..	..	..
518	19	8	81	4852	..	H.	16 17	37 39	145 8	6	14·66	6
519	15	7	71	4853	R.	..	16 18	47 18	335 36	6	23·07	6
	29	8	81	,,	..	H.	....	....	336 2	6	22·43	6
520	13	7	71	4854	R.	..	16 19	57 29	.....	..	..	..
	4	6	72	,,	R.	..	,, ,,	,, ,,	46 25	1	1·75	1
	17	6	74	,,	R.	..	,, ,,	,, ,,	.....	..	..	..
	5	6	80	,,	R.	..	,, ,,	,, ,,	.....	..	..	..
	16	7	80	,,	R.	..	,, ,,	,, ,,	.....	..	..	..
	24	8	80	,,	..	H.	,, ,,	,, ,,	.....	..	..	..
521	19	8	79	After 4854	..	H.	16 22	67 58	299 6	10	7·02	10
	29	7	80	,,	..	H.	....	....	297 5	6	5·87	6
522	7	8	72	4857	R.	..	16 22	46 13	72 39	5	7·44	5
	18	8	80	,,	..	H.	16 23	46 14	73 26	6	5 19	6
523	15	7	71	4858	R.	..	16 25	77 16	.....	..	..	..
524	13	7	71	4860	R.	..	16 27	79 27	.....	..	..	..
525	24	8	80	4861	..	H.	16 25	47 53	.....	..	..	..
526	22	6	72	4862	R.	..	16 26	61 19	179 55	4	10·88	4
	19	8	79	,,	..	H.	....	....	177 54	10	9·95	10
527	1	9	80	4863	..	H.	16 28	53 33	121 7	6	3 48	6
528	20	7	72	4865	R.	..	16 31	83 49	.....	..	..	..
529	15	7	71	4866	R.	..	16 30	56 46	.....	..	..	..
	10	8	71	,,	R.	..	16 29	56 46	124 8	6	3·80	6
	14	8	73	,,	R.	..	16 29	56 46	.....	..	..	..
	12	8	79	,,	..	H.	16 30	56 47	124 40	10	3·06	10
530	21	9	80	4867	..	H.	16 30	43 12	296 12	6	14·68	6

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
496	....	8 12	.....	Definition bad; hazy.
497	....	....	.....	Companion seen; too faint to measure; seems unaltered.
498	....	10 12	.....	Seen; no change apparent; too faint to measure.
499	159	10 10	.....	
500	159	5 9	.....	
501	159	10 12	.....	
502	....	9 11	.....	
503	159	10 11	.....	Light wires.
504	....	8½ 8½	.....	Foggy night; in the apex of a triangle. See diagram.
	140	9 9	Light blue and red ..	The pair form apex of triangle.
505	....	6 6	Both yellow	Third star not seen; bad night.
506	159	11 11	.....	Seen; not measured.
507	159	9 9	} Slight tinge of red ..	Another in field.
	159	9 12	}	
508	159	8 9	.....	No double in h.'s place; this is same as 4840.
509	159	9 9	.....	
510	159	9 10	.....	
511	159	9 9½	.....	
512	159	6 12	.....	
513	....	10 11	.....	Seen; too faint to measure; no apparent change.
514	159	9 10	.....	
515	....	7 12	Light yellow and blue	Two other pairs in the field south of this.
	....	7 11	Yellow and blue.	
516	....	7 11	.....	Seen; no change apparent; not measured.
	159	8 11	11. m. blue.	
517	159	....	.....	Not found.
518	159	10 11	.....	Light wires; Herschel's position, 115°; distance, 6″.
519	159	5 8	Both faint greenish yellow.	
	580	8 10	.....	
520	....	6	.....	Not divided; definition middling.
	230	....	.....	Seen easily and measured with 230. It is just possible that some other pair than 4854 may have been seen on this occasion; only one measure taken; it was just looked at in passing.
	140,435	....	Orange yellow	Not divided; definition not good.
	800	....	.....	Large star, suspected double but now proved single; night very favourable.
	300	....	Yellow.....	Looked carefully; a single star in Herschel's place; clear disc with all powers on 11½ refractor.
	159	6	.....	No companion.
521	159	10 10	.....	Light wires.
	159	10 11	.....	
522	....	8½ 10	White and reddish.	
	159	8 10	.....	
523	....	....	.....	No companion found; definition moderate.
524	....	9 13	.....	Too faint to measure; position estimated same Herschel's.
525	159	6	.....	No companion.
526	....	9 9½	.....	
	159	9 9½	.....	
527	159	9 10	.....	
528	....	8 0	.....	Two 8 magnitude stars here; neither has a close companion; the following star has two distant companions.
529	....	7	.....	Companion not seen.
	159	6½ 7	Faint yellow	Definition very good.
	140	7 7	.....	No apparent change.
	159	8 8	.....	
530	159	7 10	.....	Very bad definition.

Double Stars observed and

No. of star in this catalogue.	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R.	Observer's initial. H.	Approximate R.A.	Declination South.	Position angle in degrees and minutes.	No. of observations of position angle.	Distance in seconds of arc.	No. of observations of distance.
							h. m.	° ′	° ′			
531	21	9	80	4868	..	H.	16 29	50 19	76 18	6	17·62	6
532	18	8	80	4874	..	H.	16 33	60 42	297 8	6	2·82	6
533	24	8	80	4885	..	H.	16 39	48 9	244 24	6	3·68	6
									13 8	4	44·81	4
534	18	8	80	4889	..	H.	16 44	37 15	7 44	6	6·49	6
535	13	7	71	4890	R.	..	16 45	46 43	147 13	5	31·43	5
536	29	8	81	4892	..	H.	16 46	41 35	299 23	6	8·34	6
537	13	7	71	4896	R.	..	16 47	46 40	23 41	6	4·50	6
538	18	8	80	4899	..	H.	16 49	45 45	275 22	6	3·19	6
539	11	8	71	4901	R.	..	16 51	58 40	131 1	6	3·06	6
	20	6	73	,,	R.	..	....	....	132 15	6	3·29	6
540	27	6	72	4904	R.	..	16 54	75 14	133 31	4	7·11	4
541	27	6	72	After 4904	R.	..	16 52	54 57	62 29	4	33·17	4
542	30	8	81	4906	..	H.	16 53	48 45	.....	..	..	..
543	1	9	80	4908	..	H.	16 54	39 33	176 55	6	4·15	6
544	1	8	71	4909	R.	..	16 53	50 54	103 51	3	16·38	3
	22	7	72	,,	R.	..	....	....	104 8	4	16·86	4
									241 9	4	12·43	4
									239 3	4	29·38	4
	29	7	72	,,	R.	..	....	....	189 6	2	49·32	2
									104 55	2	..	..
	16	7	80	,,	R.	..	16 55	50 56	104 20	..	22·68	..
									158			
	22	7	80	,,	..	H.	16 53	51 5	243 33	6	18·85	6
									105 29	4	15·52	4
545	19	7	71	4914	R.	..	16 58	72 33	75 56	6	3·62	6
	14	8	79	,,	..	H.	....	....	77 34	10	2·47	10
546	18	8	79	4916	..	H.	16 59	49 20	276 35	10	9·47	10
547	31	7	72	4917	R.	..	17 0	54 12	.....	..	..	..
548	24	7	71	After 4917	R.	..	17 0	67 4	340 55	7	27·91	7
549	15	7	71	4919	R.	..	17 1	46 36	165 12	6	8·10	6
	2	9	79	,,	..	H.	....	....	165 27	10	7·30	10
550	14	8	71	4920	R.	..	17 2	58 26	326 39	6	3·15	6
	21	6	73	,,	R.	..	....	....	333 6	5	3·00	5
551	4	10	80	4926	..	H.	17 6	39 37	.....	..	..	..
552	4	10	80	4928	..	H.	17 8	38 26	301 0	6	12·96	6
553	2	8	71	4930	R.	..	17 9	54 14	44 50	4	9·04	4
554	2	8	71	4931	R.	..	17 9	59 18	254 36	4	2·22	4
	21	6	73	,,	R.	..	....	....	259 6	5	..	..
	23	6	73	,,	R.	..	....	....	257 7	6	0·57	1
	19	8	79	,,	..	H.	....	....	257 29	10	1·00	10
555	25	8	77	4935	R.	..	17 11	34 51	224 23	4	1·97	4
									132 23	..	..	..
556	4	10	80	4936	..	H.	17 12	45 58	77 28	6	6·23	6
557	31	7	72	4938	R.	..	17 12	56 20	.....	..	..	..
558	22	6	72	4942 γ Arae	R.	..	17 15	56 18	329 28	6	16·65	6
559	20	9	81	4944	..	H.	17 16	47 2	167 32	6	13·08	6
560	2	9	80	4949	..	H.	17 18	45 45	263 11	6	1·82	6
561	19	9	81	4953	..	H.	17 19	43 50	170 12	6	13·25	6
562	2	9	80	4957	..	H.	17 23	46 30	270e	..	1e	..
563	1	9	81	4959	..	H.	17 26	54 34	.....	..	..	..
	7	9	81	,,	..	H.	,,	,,	.....	..	..	..

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
531	159	9 10	.....	Declination differs from Herschel's h 50° 5′.
532	159	10 10	.....	
533	159	8 9	.....	Triple. See diagram.
	159	8 8		
534	159	6 9	.....	
535	....	8 9	.....	A pair, 10-10 magnitudes, position 150°e; follows this in 11s.; in a field 80s. diameter I see 20 stars from 9 mag. downwards; H. said there were none.
536	159	9 11	.....	North, preceding a cluster.
537	159	8 9	.....	
538	159	10 10	.....	Bright wires.
539	....	8 8	Both white.	
	....	8 8	.....	A 6 magnitude star, south following.
540	150	8 9	.....	Definition only middling; no third star seen.
541	....	11 or 11½	Ruby red and blue ..	Two stars seen, but no companion; night pretty good, but discs of stars too large.
542	159	....	.....	Not found.
543	159	10 10	.....	In a cluster.
544	....	8 8	Both blue	Base of the pentagon.
	....	8 8½	.....	Definition bad; observations very difficult; five stars forming a pentagon.
	....	8 11		
	....	8 11	.....	*a* to *d* } *f* is too faint to measure, distance estimated
	....	8 11		*a* to *f* } as one-tenth more than from *a* to *d*. See
	....	11 12		*d* to *e* } diagram.
				d = 11 magnitude.
				f = 11 ,,
				e = 12 ,,
				c = 12 ,,
	....	8 8	.....	Pos. 158° = *a* to *c*.
	159	8 10	.....	*b* to *c*.
	159	8 8		*a* to *b*.
545	....	....	.....	Magnitudes doubtful; very bad definition.
	159	9 9	.....	Foggy.
546	159	9 9	.....	
547	....	8 0	Orange yellow	No companion seen.
548	....	6 9	Yellow and blue.	
549	....	7 8	.....	Ill-defined, but steady.
	159	8 9	.....	
550	....	8 10	Faint yellow and blue	Bad light.
	....	8 9	White and blue.....	Fine and clear cold night.
551	....	7 12	.....	Seen.
552	159	9 10	.....	
553	....	9 10	.....	
554	....	8 8	.....	Clouds passing; definition very bad.
	140, 333	....	.....	Angle about 260°; seen elongated with 140 power; not divided with 333.
	240	....	.....	Seen clearly divided with 140.
	159	9 9	.....	
555	....	6 7	.....	Second position observation is of a distant companion; large star is a close double; 24 Aug., '77. R 298. See diagram.
		6 7		
556	159	9 10	.....	
557	....	8 8½	.....	Seen; no change noticed.
558	....	3 12	.....	Very ill-defined; third star seen in glimpses; position about 50°.
559	159	10 10	....	
560	159	6 6½	.....	
561	159	7 9	.....	
562	159	11 11	.....	
563	159	. ..	.....	Not found; definition very bad.
	159	....	.....	Not found.

DOUBLE Stars observed and

No. of star in this catalogue.	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R.	Observer's initial. H.	Approximate R.A.	Declination South.	Position angle in degrees and minutes.	No. of observations of position angle.	Distance in seconds of arc.	No. of observations of distance.
							h. m.	° ′	′ °			
564	7	9	81	4961	..	H.	17 28	59 52	151 33	6	16·40	6
565	20	6	78	4965	R.	..	17 29	51 5	232 36	6	13·97	6
566	1	9	81	4966	..	H.	17 30	34 56	.....	..	12e	..
567	19	9	81	4969	..	H.	17 32	53 56	48 52	6	15·92	6
568	19	9	81	4970	..	H.	17 33	48 35	70 49	6	7·22	6
569	7	9	81	4973	..	H.	17 36	45 12	26 58	6	12·09	6
570	20	7	71	4975	R.	..	17 38	55 22	.....	..	..	..
	26	7	80	,,	R.	..	....	....	.....	..	..	..
	30	7	80	,,	..	H.	....	....	.....	..	..	..
	7	9	81	,,	..	H.	....	....	.....	..	..	..
	16	9	81	,,	..	H.	....	....	.....	..	..	..
571	19	9	81	4978 ν Arae	..	H.	17 41	53 30	276 30	6	11·85	6
572	7	9	81	4984	..	H.	17 43	52 24	7 20	6	11·85	6
573	16	9	81	4985	..	H.	17 44	62 57	264 18	6	20·39	6
574	5	8	72	4992	R.	..	17 47	57 40	5 22	5	5·18	5
	2	9	79	,,	..	H.	....	....	11 12	9	4·31	10
575	19	7	71	4994	R.	..	17 47	52 12	29 0	4	13·87	4
576	15	8	71	4996	R.	..	17 49	62 11	.....	..	..	..
577	20	7	71	4998	R.	..	17 51	56 56	.....	..	..	..
578	26	7	71	4999	R.	..	17 53	75 14	173 22	6	12·87	6
579	16	9	81	5004	..	H.	17 54	42 5	298 45	6	12·03	6
580	15	8	71	5006	R.	..	17 54	59 13	.....	..	..	..
581	15	8	71	5008	R.	..	17 59	66 25	.....	..	..	..
	13	8	73	,,	R.	..	....	....	.....	..	..	..
582	18	8	79	5014	..	H.	17 58	43 24	90e	..	..	..
	16	6	80	,,	R.	..	....	....	79 18	10	0·81	8
583	3	9	80	5023	..	H.	18 2	40 28	277 32	6	5·85	6
584	24	7	71	5024	R.	..	18 3	63 8	7 4	6	41·62	6
585	20	7	71	5027	R.	..	18 3	54 25	84 42	6	12·98	6
	16	9	81	,,	..	H.	....	....	91 52	6	11·42	6
586	15	8	71	5029	R.	..	18 4	57 53	113 11	6	2·93	6
	2	9	79	,,	..	H.	....	....	112 18	10	1·99	10
587	11	9	73	5038	R.	..	18 11	71 53	303 46	5	11·81	5
588	3	8	71	5041	R.	..	18 15	53 43	253 35	4	3·27	4
	14	8	73	,,	R.	..	....	....	259 52	8	3·11	8
	3	9	80	,,	..	H.	....	....	264 52	6	1·82	6
589	7	10	80	5044	..	H.	18 22	55 35	356 46	6	13·80	6
590	26	9	81	5046	..	H.	18 23	48 20	75 8	6	6·24	6
591	5	8	72	5048 ζ Pavonis	R.	..	18 28	71 33	355 10	1	49·75	1
592	18	7	71	5053	R.	..	18 33	55 53	216 55	6	3·21	6
	6	8	80	,,	..	H.	....	....	225e	..	30e	..
593	4	8	71	5054	R.	..	18 33	47 47	... ..	..	15e	..
	26	9	81	,,	..	H.	....	....	326 52	6	16·17	6
594	26	7	71	5055	R.	..	18 33	52 59	73 54	6	7·76	6
595	18	7	71	5056	R.	..	18 35	55 48	196 45	3	32·57	3
596	29	9	81	5057	..	H.	18 35	53 57	130 57	6	2·30	6
597	27	7	72	5059	R.	..	18 38	49 46	.....	..	..	..
	29	7	72	,,	R.	..	....	....	.....	..	..	..
598	4	8	71	5060	R.	..	18 39	50 34	.....	..	..	..
599	29	7	72	5065	R.	..	18 41	58 5	22 4	4	22·15	4
600	26	9	81	5066	..	H.	18 43	41 9	86 32	6	9·32	6
601	28	10	80	5067	..	H.	18 44	51 5	276 23	6	2·43	6
602	20	9	81	5068	..	H.	18 44	54 27	0 51	6	10·81	6
603	4	8	71	5069	R.	..	18 45	61 59	.....	..	..	..
	10	8	71	,,	R.	..	....	....	.....	..	..	..

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
564	159	10 10	.....	
565	....	8 8	.....	A 10 magnitude star north following.
566	....	9 9	.....	Too ill-defined to measure.
567	159	9 10	.....	
568	159	9 10	.....	
569	159	8 9	.....	
570	....	6 0	.....	Companion not seen; definition bad.
	....	7	.....	Looked carefully; a 7 magnitude star in a wide cluster; no companion.
	159	6	.....	A 6 magnitude star seen; no companion.
	159	6	.....	Not divided; night is very bad.
	580	6	.....	Round with the highest power; a 9 magnitude star north preceding.
571	159	7 11	.....	
572	159	8 10	.....	Night is too bad to continue observing.
573	159	9 10	.....	
574	150	9 9½	Yellow	Very pretty and well defined.
	159	8 9	.....	
575	....	10 11	.....	Stars are very faint.
576	159	9 0	.....	Companion not found; definition bad.
577	....	....	.....	Companion not found; definition bad.
578	159	8 9	.....	Definition moderate; stars rather unsteady.
579	159	9 10	.....	
580	159	6 0	.....	Companion not seen; 6½ magnitude star north preceding; bad definition.
581	159	9 0	.....	Companion not seen; bad definition.
	....	9	Orange red	Companion only visible by oblique vision, if at all.
582	159	6 6	.....	Seen elongated; position about 90°; definition bad.
	800	....	.....	Wire between them does not cover from centre to centre.
583	159	8 8	.....	
584	....	5 11	Yellow	Can just see to measure this.
585	....	8½ 9	.....	Measured with difficulty; 9 magnitude; star is hazy.
	159	9 10	.....	
586	159	8 8	.....	Difficult; definition pretty good; light bad.
	159	8 8	.....	
587	....	9 10	.....	Fine clear night.
588	....	7 9	.....	Difficult; bad definition.
	....	7 9	.....	Definition at times very bad.
	159	7 10	.....	
589	159	10 10	.....	
590	159	10 10	.....	
591	....	5 12	Orange and blue.	
592	159	7 9	.....	
	159	7 10	.....	A coarse double star; Herschel gives no position or distance.
593	....	10 11	.....	
	159	9 10	.....	
594	159	9 9	.....	Definition horrible, though night looks splendid.
595	159	6 10	.....	Nearly in the same field with 5053.
596	159	11 11	.....	
597	....	....	.....	No. 7 magnitude star with a companion seen here; bad night.
	....	....	.....	No companion found; must be less than 12 magnitude
598	....	....	.....	Not found.
599	150	7 10	.....	Definition good.
600	159	6 10	.....	
601	159	10 11	.....	
602	159	9 11	.....	
603	....	8 12	.....	Saw the small star in glimpses; could not see the large star double.
	....	....	.....	Seen elongated towards small companion. See diagram.

DOUBLE Stars observed and

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							h. m.	° ′	° ′			
603	11	8	71	5089	R.	..	....	....	88e 88 0	.. 6	0·50e 16·04	.. 6
	1	8	81	,,	..		....	....	88 7	6	0·65	6
604	24	7	71	5075	R.	..	18 52	63 59	110 7	6	2·05	6
	23	9	79	,,	..	H.	....	....	107 14	2	1·54	2
	9	8	80	,,	..	H.	....	....	108 35	6	1·64	6
605	30	9	80	5077	..	H.	18 55	36 27	96 17	6	7·49	6
606	20	9	81	5078	..	H.	18 54	45 49	212 50	6	18·46	6
607	25	9	79	5080	..	H.	18 54	36 24	248 15	10	4·88	10
608	16	6	80	5084 γ Cor. Aust	R.	..	18 59	37 18	53 8	8	1·15	8
	3	9	80	,,	..	H.	....	....	52 22	6	1·32	6
609	5	8	72	5085	R.	..	18 59	60 16	239 26	4	3·30	4
610	15	8	71	4092	R.	..	19 4	47 34	351 0	6	18·20	6
	2	9	80	,,	..	H.	....	....	350 34	6	16·68	6
611	30	9	80	5098	..	H.	19 7	36 27	254 48	7	5·48	6
612	10	9	72	5099	R.	..	19 7	50 12	37 18	4	12·30	4
613	14	8	71	5100	R.	..	19 8	56 22	170e	..	20e	..
614	29	7	72	5103	R.	..	19 12	72 1	.....	..	..	..
	3	9	72	,,	R.	..	....	....	.....	..	..	..
615	21	9	80	5104	..	H.	19 12	51 16	88 55	6	17·82	6
616	30	9	79	5107	..	H.	19 14	44 46	78 28	10	27·76	10
617	10	8	71	5109	R.	..	19 17	67 36	14 55 141 3 262 29	4 6 4	36·73 23·04 67·75	4 6 4
618	15	9	73	5114	R.	..	19 18	54 34	95 38	2	70·55	2
619	29	9	81	5115	..	H.	19 19	40 7	65 2	6	9·27	6
620	29	9	79	5117	..	H.	19 20	44 12	265 15	10	5·61	10
621	3	9	80	5123	..	H.	19 24	66 41	4 36	6	25·68	6
622	20	8	71	5125	R.	..	19 24	50 11	293 3	6	29·08	6
623	1	10	79	5129	..	H.	19 30	47 7	115 16	10	14·39	10
624	16	9	73	5132	R.	..	19 31	66 35	309 23	6	22·08	6
	12	8	80	,,	..	H.	....	....	300e	..	20e	..
625	14	10	81	5138	..	H.	19 35	44 35	36e	..	12e	..
626	26	7	72	5140	R.	..	19 38	65 13	84 34	4	2·41	4
	29	7	72	,,	R.	..	....	....	88 30	4	2·30	4
	25	9	79	,,	..	H.	....	....	85 7	10	1·52	10
	1	11	80	,,	..	H.	....	....	83 13	6	1·76	6
627	10	9	72	5141	R.	..	19 38	62 9	344 38	4	13·28	4
628	14	10	81	5143	..	H.	19 39	46 44	318 59	6	7·87	6
629	9	10	71	After 5149	R.	..	19 42	55 22	147 5	4	22·74	4
630	7	8	73	5158	R.	...	19 52	74 56	.....	..	....	..
631	2	10	79	5159	..	H.	19 52	40 57	33 30	10	23·56	10
632	3	9	72	5162	R.	..	19 55	71 9	.....	..	....	..
	10	9	72	,,	R.	..	.....	....	292 25	6	6·09	6
	18	8	73	,,	R.	..	....	....	292 12	6	7·10	6
633	26	8	71	5163	R.	..	19 54	63 30	247 48	6	1·57	6
	10	9	73	,,	R.	..	....	....	245 48	4	2·15	4
634	14	10	81	5166	..	H.	19 57	47 11	.....	..	....	..
635	11	9	73	5167	R.	..	20 1	64 0	34 39	6	7·61	6
	29	9	79	,,	..	H.	.....	....	33 30	10	6·48	10
	29	9	81	,,	..	H.	....	....	34 0	6	6·33	6

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying Power used.	Magnitudes.	Colours.	Remarks.
	159, 230, 580	8 8 / 8 12	.....	Very difficult; large star, double; estimated position 88°; distance 0·5″ by diameter of wire; nearly always looks nebulous.
	580	9 9	.....	Small star not seen.
604	....	8 8	.....	Very difficult; looks like oval nebula, with two star points; definition bad; the nearest star is one of a small triangle; seems strange Herschel did not say so.
	159	8 8	.....	Blurred.
	159	7 7	.....	
605	159	9 10	.....	
606	159	9 10	.....	Herschel's position angle, 313·4°; the large star is double; position 287° 16′; distance 1·00″; 9 and 10 magnitude. R. 317.
607	159	8 10	.....	
608	800	....	.....	Very close star; definition middling.
	333	6 6	.....	
609	....	8 10	.....	Pretty cluster. Herschel's 3778 north following.
610	159	8 8	.....	
	159	8 8	.....	
611	159	10 10	.....	
612	160	9 13	.....	Sky very white.
613	....	14	....	Companion only seen in glimpses in a dark field; not measured.
614	....	....	Yellow	No companion seen.
	....	....	.....	No companion seen; definition bad.
615	159	9 9	.....	Definition bad.
616	159	5 7	.....	
617	....	8 10	Yellow and blue	Sky very black. See diagram.
	....	8 10	Both yellow	
618	140, 230	7 9 / 7 12	Bluish white	Definition is bad. See diagram.
619	159	9 9	.....	
620	159	8 9	.....	
621	159	9 9	.....	
622	....	9 9	.....	Stars unsteady, but well defined.
623	159	9 9½	.....	Light clouds.
624	....	8½ 10	.....	About 180° different from Herschel's position; no other double near here.
	159	8½ 10	.....	Herschel's position 180° wrong.
625	159	10 12	.....	Seen.
626	....	8 8	.....	Very bad definition.
	....	....	.....	Calm, dark, and thick night; stars seem to have only half their usual light.
	159	8 8	.....	
	159	8 8	.....	Cirrus very thick.
627	150	8 12	.....	
628	159	10 11	.....	
629	....	8 8½	Yellow and greenish yellow.	Very pretty object; stars are nearly the same colour; the smaller has a tinge of green.
630	....	10 10	.....	Only just visible with lamp-light; too faint to measure; no change apparent.
631	159	9 9½	.....	
632	....	8 11	.....	Not seen.
	....	8 11	.....	Five stars in an elliptic arc precede this double star.
	140	8 10	.....	Preceded by an elliptic arc.
633	435	8 9	.....	Very hazy; definition very middling.
	140, 230	8 8½	.....	Very difficult; the night is hazy and thick.
634	159	6 10	.....	Seen.
635	....	8 9	.....	Definition very bad.
	159	8 9	.....	
	159	9 10	.....	

DOUBLE Stars observed and

No. of star in this catalogue.	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R.	Observer's initial. H.	Approximate R.A.	Declination south.	Position angle in degrees and minutes.	No. of observations of position angle.	Distance in seconds of arc	No. of observations of distance.
							h. m.	° ′	° ′			
636	8	8	73	5171	R.	..	20 3	64 49	295 49 325 53	4 4	17·82 28·05	
637	3	9	72	5177	R.	..	20 5	57 21	.....	..	....	..
	26	8	73	,,	R.	..	....	....	27 55	6	8·62	6
	25	9	79	,,	..	H.	....	....	27 33	10	6·72	10
638	26	9	81	5178	..	H.	20 6	34 24	7 25	6	2·09	6
639	30	9	79	5179	..	H.	20 7	46 29	135 24	10	5·11	10
640	10	10	79	After 5184	..	H.	20 10	40 45	109 40	10	9·38	10
641	13	10	79	5186	..	H.	20 16	77 38	97 21	10	7·09	10
642	6	10	70	5192	R.	..	20 20	87 35	147 32	8	17·71	8
	11	8	71	,,	R.	..	....	....	147 37	6	18·53	6
	2	10	79	,,	..	H.	....	....	325 31	7	18·18	7
643	15	9	73	5193	R.	..	20 17	57 7	331 12	4	17·02	4
	2	11	80	,,	..	H.	....	....	334 37	6	16·27	6
644	3	10	71	5194	R.	..	20 18	69 32	249 3	7	4·29	7
645	1	11	80	5198	..	H.	20 19	36 50	237 14	6	6·13	6
646	3	7	72	ρ Capricorni	R.	..	20 20	18 36	144 21	4	4·52	4
647	6	10	70	After 5201	R.	..	20 23	75 48	16 36	10	18·68	5
	3	10	71	,,	R.	..	....	....	16 5	4	17·60	4
	23	9	79	,,	..	H.	....	....	16 31	10	17·14	10
648	30	9	79	5204	..	H.	20 24	45 50	31 18	10	5·42	10
649	19	10	78	5209 α Indi	R.	..	20 29	47 45	190e	..	0·70e	..
650	29	9	79	5214	..	H.	20 38	75 45	.....	..	....	..
	14	10	79	,,	..	H.	....	....	312 33	10	21·97	10
	26	7	80	,,	..	H.	....	....	315 14	6	19·77	6
651	7	10	80	5216	..	H.	20 38	38 0	202 24	6	15·00	6
652	19	10	78	5221	R.	..	20 41	66 10	49 18	2	10·29	2
653	10	9	73	5222	R.	..	20 41	62 55	93 59	6	3·38	6
	22	9	79	,,	..	H.	....	....	96 54	10	2·21	10
	12	8	80	,,	..	H.	....	....	90e	..	4½e	..
654	14	10	79	5224	..	H.	20 42	34 17	165 31	10	19·96	10
655	11	9	73	5231	R.	..	20 47	70 54	113 55	6	7·82	6
656	10	10	79	5232	..	H.	20 47	56 27	9 27	10	24·44	10
657	26	10	81	5234	..	H.	20 48	34 36	.....	..	....	..
658	26	8	71	5235	R.	..	20 56	84 48	85 35	6	4·05	6
	30	9	79	,,	..	H.	....	....	90 16	10	2·32	10
	13	10	79	,,	..	H.	....	....	84 45	10	2·51	10
659	22	9	80	5236	..	H.	20 50	38 10	309 16	6	5·01	6
660	14	10	79	5238	..	H.	20 53	44 55	12 56	10	36·58	10
661	29	9	79	After 5238	..	H.	20 54	43 35	74 56	10	57·47	10
662	12	9	73	5243	R.	..	20 58	57 32	95 55	4	24·70	4
663	1	9	71	5245 ? 5235	R.	..	20 56	84 48	.....	..	....	..
	18	8	73	,,	R.	..	....	....	261 59	6	3·83	6
	16	9	73	,,	R.	..	....	....	264 49	6	3·73	6
	27	5	80	,,	R.	..	....	....	266 27	6	3·86	6
	28	5	80	,,	..	H.	....	....	266 47	10	2·62	10
	26	7	80	,,	..	H.	....	....	260e	..	3e	..
	9	8	80	,,	..	H.	....	....	.....	..	....	..
664	15	10	73	5246	R.	..	21 1	55 5	129 3	6	3·82	6
	5	10	78	,,	R.	..	....	....	120 32	4	....	..
	19	10	78	,,	R.	..	....	....	122 6	6	3·62	4
	13	10	79	,,	..	H.	....	....	121 29	10	2·23	10
665	10	10	79	5247	..	H.	21 2	49 26	187 59	10	27·50	10
666	1	9	71	5250	R.	..	21 6	64 11	.....	..	....	..
	2	9	71	,,	R.	..	....	....	305 36	6	9·71	6

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
636	....	7 10	.....	Definition bad. See diagram.
	....	7 10		
637	....	9 9	.....	Not seen; air very thick; definition not good.
	140	9 9	.....	Definition good.
	159	8 9	.....	
638	159	7 10	.....	Very clear.
639	159	10 10	.....	
640	159	8 8	.....	
641	159	9 9½	.....	
642	230	7 8	.....	Herschel's position, 329° 21′; distance, 17″; magnitude, 8·8. Stars equal angle taken either way.
	....	8 8	.....	Stars dancing.
	159	8 8	.....	Clouds stopped observations.
643	....	7 10½	.....	Follows α Pavonis, not red.
	159	10 11	.....	
644	....	7 13	.....	Beautiful, but difficult; definition pretty good.
645	159	9 10	.....	Light wires.
646	....	6 9½	.....	This is 2099 in h's measures; h's angle 177°.
647	....	7 7½	.....	Clear moonlight; Herschel's position, 17°23′; distance, 18·69″
	....	7 7½	Both yellow	Quite as bright as Herschel's 5194.
	159	7 8	.....	Indistinct.
648	159	8 9	.....	
649	....	3 16	.....	Estimated.
650	159	8 9	.....	Seen; not measured; distance, 30″.
	159	8 10	.....	
	159	8 10	.....	
651	159	9 9	.....	
652	....	10 10	.....	Observed at Woodford, 2200 feet above sea.
653	140	6½ 6½	Both white	Fine double; definition good.
	159	6 6	.....	
	159	7 7	.....	Bad definition.
654	159	5 9	.....	
655	....	8 8	.....	Fine double.
656	159	9 10	.....	
657	159	....	.....	Not found.
658	....	8 8	.....	Seems to be the same as h. 5245.
	159	8 8	.....	
	159	8 8	.....	
659	159	10 10	.....	Haze about.
660	159	9 9	.....	
661	159	6 6	.....	
662	140	10 11	.....	Very faint; only just measurable.
663	....	8 8	.....	Looked carefully; not found; definition bad.
	....	8 8	.....	A fine pair; think Herschel's position must be wrong; declination 30′ too great; or 5235 and 5245 are same star, unless one of those H. saw has since closed up.
	....	7½ 7½	Both white	Ill-defined; light hot wind.
	250	8 8	.....	An 8 magnitude star follows north.
	159	8 8	.....	
	159	9 9	.....	Same as Herschel's 5235.
	159	....	.....	Not found in H.'s position.
664	140	8 8	.....	Definition very bad.
	....	....	.....	
	....	....	.....	
	159	8 8	.....	
665	159	8 9	.....	
666	....	8 9	....	Seen; definition so bad it is useless trying to measure.
	. ..	8½ 9	Straw yellow and blue.	

Double Stars observed and

No. of star in this catalogue	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R.	Observer's initial. H.	Approximate R.A.	Declination South.	Position angle in degrees and minutes.	No. of observations of position angle.	Distance in seconds of arc.	No. of observations of distance.
							h. m.	° ′	° ′		″	
667	21	10	79	5254	..	H.	21 8	40 4	182 44	10	57·36	10
668	27	9	70	5256	R.	..	21 11	60 49	152 38	4	30· 9	4
	9	8	80	,,	..	H.	....	....	160e	..	20e	..
669	26	10	81	5257	..	H.	21 11	51 11	276 43	6	13·02	6
670	27	9	70	5258 θ Indi	R.	..	21 12	53 58	286 47	6	3·72	6
	3	10	71	,,	R.	..	....	....	288 14	6	3·85	6
	14	10	73	,,	R.	..	....	....	285 56	6	4·76	6
	8	10	78	,,	R.	..	....	....	288 50	10	4·68	6
	12	8	80	,,	..	H.	....	....	289 33	6	3·68	6
671	28	9	70	5260	R.	..	21 18	72 20	.....	..	....	..
672	28	9	70	5261	R.	..	21 17	86 24	201 48	4	5·60	4
	29	10	79	,,	..	H.	....	....	203 43	10	4·18	10
673	26	10	81	5267	..	H.	21 18	45 35	.....	..	....	..
674	11	10	71	5270	R.	..	21 19	60 44	40e	..	12e	..
675	14	10	81	5274	..	H.	21 23	35 19	148 50	6	22·91	6
676	9	10	71	5278 λ Octantis	R.	..	21 31	88 20	81 21	5	3·13	5
	20	10	73	,,	R.	..	....	....	79 1	4	3·36	4
677	26	10	80	5286	..	H.	21 35	58 23	88 46	6	6·97	6
678	27	10	79	5288	..	H.	21 35	38 39	57 11	10	19·37	10
679	20	9	80	5289	..	H.	21 37	81 8	47 44	6	14·89	6
680	13	10	73	5292	R.	..	21 37	85 20	.....	..	....	..
	20	10	73	,,	R.	..	....	....	152 26	4	5·27	4
681	20	10	73	5294	R.	..	21 35	60 48	192 54	1	..	..
	21	10	73	,,	R.	..	....	....	191 1	6	8·51	6
	14	14	79	,,	..	H.	....	....	189 4	10	7·89	10
682	26	10	81	5295	..	H.	21 40	47 46	2 47	4	39·79	4
683	21	10	79	5299	..	H.	21 47	40 39	241 34	10	41·83	10
684	21	10	70	5301	R.	..	21 48	77 56	204 22	10	11·01	10
685	10	11	80	5302	..	H.	21 49	53 36	348 31	6	12·68	6
686	26	10	81	5303	..	H.	21 49	43 6	47 51	6	24·66	6
687	22	9	80	5305	..	H.	21 49	41 38	246 17	6	19·30	6
688	7	11	79	5308	..	H.	21 50	46 9	313 36	10	18·38	10
689	26	10	80	5309	..	H.	21 49	51 37	167 21	6	8·07	6
690	24	11	80	5315	..	H.	21 59	38 15	152 39	6	22·52	6
691	15	10	73	5316	R.	..	21 58	59 45	145 26	6	5·02	6
692	5	9	70	5318	R.	..	22 6	81 7	117 54	10	9·14	5
	20	9	80	,,	..	H.	....	....	120 27	6	8·58	6
693	10	10	79	5319	..	H.	22 4	38 55	.....	..	..	..
	12	11	79	,,	..	H.	22 5	39 4	117 43	10	1·60	10
694	6	10	70	5323	R.	..	22 10	61 28	24 44	13	26·41	13
	4	10	71	,,	R.	..	....	....	24 39	3	26·73	3
	27	10	79	,,	..	H.	....	....	24 9	10	25·57	10
695	29	10	79	5325	..	H.	22 14	78 33	88 50	10	18·74	10
696	19	10	78	5326	R.	..	22 12	37 19	.....	..	..	..
	30	11	80	,,	..	H.	....	....	298 45	6	6·74	6
697	9	10	73	After 5326	R.	..	22 14	70 38	.....	..	..	..
698	7	12	80	5327	..	H.	22 15	65 44	127 16	6	24·60	6
699	28	10	80	5328	..	H.	22 15	65 45	.....	..	..	..
700	11	11	80	5331	..	H.	22 18	63 33	1 59	6	14·91	6
701	10	10	71	5334 δ Toucani	R.	..	22 18	65 40	283 19	6	6·78	6
	7	10	73	,,	R.	..	....	....	286 34	6	6·76	6
	28	10	80	,,	..	H.	....	...	280e	..	..	..
702	24	11	81	5335	..	H.	22 18	45 55	.....	..	..	..
703	28	9	70	5338	R.	..	22 20	52 25	.....	..	..	..
704	10	10	71	After 5338 δ Gruis.	R.	..	22 22	44 28	213 42	2	60·01	2
	11	11	79	,,	..	H.	....	....	212 37	10	60·94	10

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.	Colours.	Remarks.
667	159	8 9	.....	
668	....	8 8	.....	A very pretty double in the field with this. R. 329.
	159	9 9	.....	Another double in the field north preceding.
669	159	9 10	.....	
670	280	6 10	.....	Small star west; good definition.
	....	5 9	.....	Stars are unsteady.
	140	6 7½	.....	
	....	....	.....	
	159	5 9	.....	No third star seen; definition bad.
671	....	6 12	.....	Carefully examined; companion not seen.
672	....	9 9	.....	Definition middling.
	159	8 8	.....	
673	159	....	.....	Not found; a 7 and 9 magnitude wide pair 180°e; seen at 46° 30′ S. Dec.
674	....	9 11	.....	
675	159	9 9	.....	
676	150, 280	5 8	.....	Clouds came up.
	....	6½ 9	Both yellow	Splendid definition; calm, clear.
677	159	9 11	.....	
678	159	8 9	.....	
679	159	9 10	.....	
680	....	8 10	.....	Companion not seen; definition very bad.
	....	10 11½	.....	Only just able to measure this.
681	....	10 11	.....	Clouds interrupted observations.
	....	11 11	.....	Very faint and difficult, only just able to measure it.
	159	10 10	.....	
682	580	5 9	.....	
683	159	8 8	.....	
684	320	8 11	.....	Windy; bad definition; Herschel's position, about 203°; distance, 12″; magnitudes, 8—10.
685	159	8 11	.....	
686	159	9 10	.....	
687	159	9 9	.....	Fog stopped observations.
688	159	9 9	.....	
689	159	10 10	.....	
690	159	9 9	.....	Scud stopped work.
691	150	9 10	.....	The northern of two stars.
692	....	9 9	.....	High wind; points a little north of ε Octantis.
	159	9½ 9½	.....	Points to a 5th magnitude star north preceding.
693	159	.. ..	.....	Not found.
	159	8 8	.....	
694	....	8 8	.....	Herschel's position, 25·8°; distance, 20″; magnitudes, 8—8.
	....	....	.....	Clouds stopped observations.
	159	8 8	.....	
695	159	8 8	.....	
696	....	10 10	.....	Seen at Woodford; not measured; 2,200 above sea.
	159	10 10	.....	Definition very bad.
697	....	6 9	.....	Companion not found; night very good.
698	159	9 10	.....	Very indistinct.
699	159	11 12	.....	Seen; too faint to measure.
700	159	11 11	.....	Ill-defined; bad observations.
701	150	5½ 9	Faint yellow and tinge of green.	
	140	....	.....	Definition not good.
	....	....	.....	Only double.
702	....	10 10	.....	Seen; definition too bad to measure.
703	....	7 12	.....	Carefully examined; companion not seen.
704	150	5½ 9	Bright yellow and blue	Another bright yellow 5½ magnitude star 1′ north of this.
	159	4 9	.....	

Double Stars observed and

No. of star in this catalogue.	Day of the month.	Month of the year.	Year in the 19th Century.	Herschel's number and name.	Observer's initial. R.	Observer's initial. H.	Approximate R.A.	Declination South.	Position angle in degrees and minutes.	No. of observations of position angle.	Distance in seconds of arc.	No. of observations of distance.
							h. m.	° ′	° ′			
705	21	10	79	5389	..	H.	22 25	74 38	.....	..	..	..
706	30	9	80	5342	..	H.	22 26	66 42	.....	..	..	..
707	24	11	81	5354	..	H.	22 33	58 24	74 45	6	25·42	6
708	10	12	80	5362	..	H.	22 40	47 35	139 6	6	8·96	6
709	21	10	73	5364	R.	..	22 42	57 10	100 9	6	10·34	6
710	7	11	79	5366	..	H.	22 45	43 37	251 30	10	14·67	10
711	21	10	70	5368	R.	..	22 47	85 18	125 51	10	7·79	10
712	10	12	80	5373	..	H.	22 55	64 54	97 38	6	46·96	6
713	25	11	80	5374	..	H.	22 55	73 51	58 17	6	11·92	6
714	30	9	70	5378	R.	..	22 56	83 4	.....	..	....	..
	1	10	70	,,	R.	..	....	....	345 7	8	39·95	8
715	14	10	73	5379	R.	..	22 56	57 0	328 18	5	12·55	5
716	25	11	80	,,	..	H.	22 59	75 37	52 47	6	3·11	6
717	12	11	73	5382	R.	..	22 57	52 4	48 13	6	7·71	6
	27	10	79	,,	..	H.	22 58	52 7	50 24	10	6·85	10
718	28	9	70	θ Gruis Jacobs 238	R.	..	23 0	44 12	11 28	2	2·30	2
	5	10	70	,, ,,	R.	..	....	.....	16 44	1	2·30	1
719	27	9	70	After 5383	R.	..	23 0	51 22	258 47	3	8·00	3
	3	10	71	,,	R.	..	....	....	258 37	6	8·56	6
	12	11	73	,,	R.	..	23 0	51 21	257 29	6	8·71	6
	14	10	79	,,	..	H.	23 0	51 23	260 46	10	7·89	10
720	10	11	70	After 5384	R.	..	23 2	60 22	290 56	10	14·29	10
	30	11	81	,,	..	H.	....	....	293 23	6	14·04	6
721	5	10	70	5385	R.	..	23 3	79 0	.....	..	....	..
722	25	11	80	5387	..	H.	23 7	41 36	277 52	6	7·43	6
723	3	10	70	5388	R.	..	23 11	81 5	120 6	3	11·80	3
	15	10	70	,,	R.	..	....	....	122 6	10	11·60	10
724	5	10	70	After 5390	R.	..	23 11	61 40	100 55	2	40·65	2
725	10	11	71	5394	R.	..	23 14	51 3	209 58	6	16·10	6
	25	11	79	,,	..	H.	....	....	209 49	10	16·40	10
726	15	11	80	5395	..	H.	23 14	38 18	231 15	6	2·57	6
727	29	10	70	5400	R.	..	23 23	54 59	.....	..	....	..
728	9	12	80	5401	..	H.	23 24	52 56	42 16	6	11·97	6
729	15	11	70	5402	R.	..	23 25	69 45	198 24	10	35·92	10
	5	12	81	,,	..	H.	....	....	198 5	6	36·67	6
730	15	10	73	5407	R.	..	23 29	64 48	22 46	4	10·33	4
	25	11	80	,,	..	H.	....	....	22 38	6	9·08	6
731	21	10	73	5411 θ Phœnicis	R.	..	23 33	47 22	271 15	4	4·75	4
732	8	11	70	5414	R.	..	23 36	78 31	261 55	9	8·32	11
	7	12	80	,,	..	H.	....	....	261 15	6	6·64	6
733	8	11	70	5419	R.	..	23 40	72 39	.....	..	....	..
	16	11	80	,,	..	H.	23 40	72 38	100 36	6	21·17	6
734	11	11	79	5422	..	H.	23 43	44 10	347 47	10	5·96	10
735	3	10	70	5427	R.	..	23 47	72 52	64 21	1	9·30	1
	7	11	79	,,	..	H.	....	....	60 31	10	8·32	10
736	16	11	80	5430	..	H.	23 48	77 23	55 33	6	20·90	6
737	12	11	79	5432	..	H.	23 49	59 29	37 33	10	21·50	10
738	28	9	70	5437	R.	..	28 54	53 46	.....	..	....	..

measured at Sydney Observatory—*continued.*

No. of star in this catalogue.	Magnifying power used.	Magnitudes.		Colours.	Remarks.
705	....	9	11	.....	Seen; not measured.
706	159	11	11	.....	Seen; too hazy to measure[1]
707	159	8	9	.....	
708	159	7	11	.....	
709	....	10	10	.....	South end of a small triangle.
710	159	8	9	.....	
711	100, 320	9	9	.....	First two measures with power 100; Herschel's position is 125·5°; distance, 8″; magnitudes, 9-9.
712	159	7	10	.....	
713	159	11	11	.....	
714	....	9	9	.....	Seen; clouds prevented observations.
	....	....		.....	Definition good; clouds stopped observations.
715	159	10	10	.....	
716	159	10	10	.....	
717	140	9	9	Both white.	
	159	9	9	.....	
718	....	5	8	.....	Good observations.
	....	4	8	.....	R. A. S. Journal, vol. 17, page 88. Jacob's catalogue.
719	230	7	7½	.....	Definition fair.
	....	7	7½	....	
	140	7½	8	Both straw yellow ..	Fine and clear.
	159	6	7	.....	
720	....	8	11	.....	Position doubtful; the first three measures of distance unsatisfactory; Herschel's position, 293·4°; distance, 12″; magnitudes, 8-10.
	159	8	10	.....	
721	....	....		.....	Not found.
722	159	8	10	.....	
723	100	8	12	.....	Fine pair; companion not seen with higher power than 100.
	....	8	11	.....	Herschel's position, 124·4°; distance, 10″; magnitudes, 8-12. Reflector.
724	....	6	12	.....	
725	150	5½	9	Yellow.	
	159	6	9	.....	
726	159	9	10	.....	Very badly defined.
727	....	7	13	.....	Not seen; light clouds about.
728	159	10	10	.....	
729	100	8	11	.....	Herschel's position, 202°; distance, 35″; magnitudes, 8-11.
	159	8	10	.....	
730	....	10	11	Yellow.	
	159	8	10	.....	Herschel's declination is 65° 46′ south.
731	....	7	8	.....	Definition got very bad after first two observations.
732	150	8	10	.....	Definition improved; Herschel's position, 262·7°; distance, 8″; magnitudes, 8-10.
	159	8	10	.....	Cloudy.
733	....	....		....	Not found; full moon.
	159	10	10	....	
734	159	10	10	.....	Very difficult; light wires.
735	....	9	9	.....	Clouds stopped observations.
	159	9	9	.....	
736	159	10	11	.....	
737	159	9	10	.....	
738	....	....		.....	Could not see the companion.

SYDNEY OBSERVATORY.

NEW DOUBLE STARS

FOUND WHILE REMEASURING

HERSCHEL'S CAPE STARS,

1882.

Sydney Observatory List of New Double Stars.

No. and Name.	R.A.	Dec. S.	Position.		Distance.		Date of Observations.	Mag.		Colours.	Remarks.
			Measured.	Estimated.	Measured	Estimated.					
	h. m.	° ′	°	°	″	″					
1	0 0	78 12	.....	60	.....	.....	1871·752	9	14		
2	0 4	72 17	.....	30	.....	25	80·720	11	12		
3	0 22	66 37	.....	120	.....	1	73·900	9	10	.....	Brighter star of H 3370; has a companion not seen by Herschel.
4	0 28	54 15	91·300	.....	3·09	.....	73·861	10	11		
5	1 1	60 40	199·417	.....	22·91	.....	80·407	9	9½	.....	First seen, 1870·351; position, 192·433; distance, 23·126.
6	1 16	83 0	.....	5	.....	15	70·894	14	14		
7	1 16	76 26	.....	260	.....	10	70·894	10	11		
8	1 16	83 22	.....	270	.....	20	70·894	11	11		
9	1 17	80 50	.....	320	.....	1	70·894	13	13		
10	1 21	86 5	.....	120	.....	12	70·894	12	12		
11	1 38	76 36	126·867	.....	1·94	.....	73·831	9	9	White	Very fine double; it is the preceding of a triangle, and just in the field south preceding H 3464, and much more difficult; evidently not divided by H.'s reflector.
12 B A C 599	1 52	60 46	35·875	.....	2·04	.....	82·032	8	8		
13	2 9	63 3	82·753	.....	37·40	.....	70·897	10	10		
14	2 11	73 13	162·791	.....	9·75	.....	81·071	9	10		
15	2 11	70 42	136·541	.....	11·57	.....	70·897	10	11		
16	2 16	60 35	.....	140	.....	14	73·861	11	11	.....	South preceding H 3499 only 15 S.; cannot understand why H. did not see it.
17	2 34	62 11	.....	260	.....	8	70·897	12	13		
18	2 45	62 5	46·858	.....	27·80	.....	70·897	11	12		
19	3 12	76 10	.....	90	.....	4	70·905	12	12		
20	3 12	65 40	.....	120	.....	25	70·905	11	13		
21	3 12	67 50	.....	300	.....	20	70·905	12	13		
22	3 12	69 50	.....	90	.....	3	70·905	11	11		
23	3 13	70 38	.....	160	.....	15	70·905	12	12		
24	3 13	74 27	.....	86	.....	20	70·905	11	12		
25	3 13	80 35	.....	110	.....	20	71·024	11	12		
26	3 15	44 22	38·950	.....	44·71	.....	79·033	7	8		
27	3 16	69 54	.....	260	.....	10	81·082	12	13		
28	3 18	70 50	.....	.....	.....	20	70·908	7	12		
29	3 18	70 15	.....	230	.....	40	81·112	7	13		
30	3 40	80 56	.....	.....	.....	10	75·919	10	11		
31	3 42	78 46	244·017	.....	27·04	.....	71·013	9	11		

SYDNEY OBSERVATORY LIST of New Double Stars—*continued.*

No. and Name.	R.A.	Dec. S.	Position.		Distance.		Date of Observations.	Mag.	Colours.	Remarks.
			Measured.	Estimated.	Measured.	Estimated.				
	h. m.	° ′	°	°	″	″				
32	3 56	37 20	195·367	.....	33·00	.....	1881·164	9 10		
33	3 57	37 9	292·717	.....	13·46	.....	81·164	9 10		
34	4 0	66 30	.....	235	.....	.....	80·021	9 10		
35	4 1	82 50	.....	30	.....	15	.....	10 11		
36	4 1	66 53	.....	130 230	.....	30 60	80·040	10 10 10		
37	4 4	84 17	.....	.....	.....	.....	.....	.....	.....	Suspected double.
38	4 5	85 32	236·412	.....	1·58	.....	71·048	7 8	Very white ..	First seen, 1871·040.
39	4 6	85 32	207·300	.....	41·58	.....	81·111	10 11	.....	First seen, 1871·048, in field with last star.
40	4 7	60 40	.....	200	.....	.....	80·021	8 8		
41	4 8	60 45	.....	80	.....	.....	80·021	8 9		
42	4 9	69 30	.....	.....	.....	25	71·040	8 8		
43	4 9	73 0	.....	.....	.....	12	71·040	9 9	.....	In same field.
44	4 9	73 0	.....	.....	.....	15	71·040	8 9		
45	4 9	78 25	.....	.....	.....	20	71·040	10 10		
46	4 9	83 13	.....	.....	.....	15	71·040	9 11		
47	4 11	85 30	236° 25″	.....	1·58	.....	71·040	7 8	Both white ..	Measured with 580 power; angle not very different from h. 3631, measured same evening.
48	4 9	85 28	.....	.....	.....	20	71·040	9 10	.....	In same field.
49	4 9	88 36	.....	.....	.....	10	71·040	9 10		
50	4 10	81 56	.....	210	.....	6	71·040	9 10		
51	4 12	85 30	.....	.....	.....	½	.....	.....	.....	Not far from h. 3631 another star looks double.
52	4 15	66 33	.....	45	.....	30	80·040	7 9		
53	4 21	67 18	.....	30	.....	30	80·040	8 8		
54	4 37	63 1	98·367	.....	32·35	.....	79·092	.....	.....	Mags. not given.
55	4 40	61 28	.....	.....	.....	10	73·993	9 9		
56	5 0	35 35	318·350	.....	2·23	.....	82·196	5 10	.....	Fine double.
57	5 1	65 14	187·383	.....	37·81	.....	79·109	8 9		
58	5 13	78 20	.....	210	.....	.....	71·026	11 12	.....	In same field.
59	5 13	78 20	.....	110	.....	.....	71·026	11 15		
60	5 47	80 40	.....	.....	.....	.....	73·078	7 0	.....	Suspected double.
61	6 12	67 10	.....	.....	.....	25	71·029	10 10		
62	6 13	73 36	.....	.....	.....	20	71·029	9 11		
63	6 13	71 25	.....	.....	.....	10	71·029	11 11		
64	6 14	66 17	.....	.....	.....	20	71·029	10 10		
65	6 26	50 16	318·033	.....	12·50	.....	79·185	6 9	.....	Large; is a fine double; position, 267° 641″; distance, 72″; power, 580.

SYDNEY OBSERVATORY LIST of New Double Stars—*continued.*

No. and Name.	R.A.	Dec. S.	Position.		Distance.		Date of Observations.	Mag.		Colours.	Remarks.
			Measured.	Estimated.	Measured.	Estimated.					
	h m	° ′	°	°	″	″					
66	6 32	66 17	.....	.....	.....	20	1871·029	9	10		
67	6 32	77 21	.....	.....	.....	15	71·029	8	8		
68	6 40	55 22	.....	.....	.....	8	74·155	9	12	.....	Two smaller stars follow ; nice double.
69	6 40	58 22	353·768	.....	4·95	.....	79·215	10	11		
70	7 8	72 55	.....	90	.....	.....	72·100	11	11		
71	7 14	44 39	77·465	.....	15·39	.....	79·248	10	10		
72	7 15	62 57	317·044	.....	26·87	.....	81·303	9	10		
73	7 16	44 55	183·137	.....	9·34	.....	81·278	11	11		
74	7 18	52 5	282·354	.....	41·97	.....	80·437	7	8	.....	First seen, 73·191 north and 12s. following h. 3959.
75	7 19	55 6	88·316 79·333	....	5·07 31·82	.....	82·155	10	11 11	.....	Triple ; three stars nearly in a line.
76	7 19	55 9	261·608	.....	26·73	.....	80·437	10	11		
77	7 25	61 48	101·783	.....	21·08	.....	80·440	11	12	.....	First seen, 73·174.
78	7 28	60 41	287·090	.....	15·50	.....	81·308	11	11		
79	7 45	58 45	299·790	.....	35·78	.....	80·440	9	9½		
80	7 52	53 20	341·175	.....	34·61	.....	80·347	8	8½		
81	8 4	48 51	34·595	.....	15·08	.....	80·440	9	9	.....	In a cluster ; first seen, 73·180.
82	8 14	62 31	62·256	.....	2·60	.....	81·349	6	10	.....	In field with 4077 on 10/3/82; angle 66°·07″; distance, 3·76″.
83	8 16	58 47	88·108	.....	3·54	.....	81·355	11	11		
84	8 22	58 44	213·833	.....	7·71	.....	81·352	10	10		
85	8 24	34 44	145·928	.....	23·99	.....	81·341	7	10		
86	8 35	45 47	240·220	.....	13·91	.....	79·328	9	11	.....	Diagram shows it in field and south of h. 4122.
87	8 53	52 16	240·517	.....	3·47	.....	81·256	6	9	Yellow and bluish	
88	8 53	53 20	147·667	.....	10·92	.....	74·109	8	8	.....	A pair seen here, 81·339.
89	8 55	67 44	212·128	.....	44·40	.....	80·284	7	10		
90	8 56	59 17	.....	270	.....	8	81·355	9	13	.....	Two pairs in the field.
91	8 56	59 17	.....	90	.....	10	81·355	11	12		
92	9 9	58 0	.....	100	.....	12	81·256	9	10		
93	9 9	58 0	.....	140	.....	18	81·256	10	10		
94	9 9	59 22	.....	330	.....	.....	81·256	10	11		
95	9 10	57 34	.....	.....	.....	.....	81·256	9		.....	Four 9th magnitude stars here with companions.
96	9 10	57 34	.....	.....	.....	.....	81·256	9		.....	
97	9 10	57 34	.....	.....	.....	.....	81·256	9		.....	
98	9 10	57 34	.....	.....	.....	.....	81·256	9		.....	

SYDNEY OBSERVATORY LIST of New Double Stars—*continued.*

No. and Name.	R.A.	Dec. S.	Position.		Distance.		Date of Observations.	Mag.		Colours.	Remarks.
			Measured.	Estimated.	Measured.	Estimated.					
	h m	° ′	°	°	″	″					
99	9 11	52 57	.....	355	.....	12	1881·256	10	10		
100	9 11	52 57	.....	50	.....	15	81·256	11	11		
101	9 11	51 0	.....	340	.....	6	81·256	10	11		
102	9 12	55 30	.....	45	.....	.....	81·256	11	11	.....	Four pairs in the field. See diagram.
103	9 12	55 30	.....	50	.....	.....	81·256	11	11		
104	9 12	55 30	.....	350	.....	.....	81·256	10	11	.....	See diagram R. 104.
105	9 12	55 30	.....	280	.....	.....	81·256	10	11	.....	Stars A., B., C., and D.
106	9 12	58 15	.....	120 260	.....	16 25	81·256	8½	9 9½	.....	Triple. See diagram.
107	9 12	57 52	.....	260	.....	8	.....	9	10		
108	9 12	55 12	.....	270	.....	8	.....	10	10		
109	9 12	49 47	69·728	.....	9·10	.....	81·393	10	10 12	.....	Triple. See diagram.
				340	.....	12					
110	9 17	60 13	26·623	.....	11·06	.....	81·388	10	11		
111	9 17	56 46	209·132	.....	8·52	.....	80·347	11	12	.....	First seen, 1873·174.
112	9 19	48 59	281·050	.....	9·95	.....	80·333	9	9½	.....	First seen, 1880·314.
113	9 19	49 0	.....	345	.....	15	80·333	10	11		
114	9 20	49 0	.....	310	.....	15	80·333	11	11		
115	9 21	49 15	.....	350	.....	18	80·333	10	11		
116	9 21	49 15	.....	20	.....	18	80·333	10	10½	... .	In same field.
117	9 21	49 15	.....	85	.....	18	80·333	11	11½		
118	9 22	66 58	.....	230	.....	10	78·161	10	11		
119	9 27	55 28	18·683	.....	16·87	.....	73·207	11	11		
120	9 27	55 28	34·483	.....	9·59	.....	73·207	10	10		
121	9 28	55 29	.....	210 160	.....	6 10	81·355	10 11	11 12	.....	See diagram.
122	9 28	55 26	94·783	.....	3·20	.....	73·207	9½	10		
123	9 29	57 23	30·050	.....	2·53	.....	73·174	8	8	.....	This is the following star of a small triangle.
124	9 32	47 29	66·783	.....	5·48	.....	81·393	10	10		
125 B.A.C. 3298	9 32	48 13	162·250	.....	2·12	.....	80·314	8	11	.....	First observed 1880·289; position, 167°·8; distance 3·42″; magnitudes, 8·10.
126	9 31	48 30	.....	310	.....	7	80·333				
127	9 31	48 31	236·217 348·057	.....	13·11 2·38	.....	80·333	7 7	10 7	....	Triple. See diagram.
128	9 36	48 46	290·633	.....	35·30	.....	80·508	9	10	.....	First seen, 1880·333.
129	9 38	55 15	106·483	.....	4·12	.....	73·174	8	8		
130	9 40	49 0	248·691	.....	17·67	.....	80·443	8	8	.....	First seen, 1880·333.
131	9 41	44 30	.....	120		8	81·415	10	10		

SYDNEY OBSERVATORY LIST of New Double Stars—*continued.*

No. and Name.	R.A.	Dec. S.	Position.		Distance.		Date of Observations.	Mag.	Colours.	Remarks.
			Measured.	Estimated.	Measured.	Estimated.				
	h m	° ′	°	°	″	″				
132	9 46	56 54	159·683	.....	7·59	.....	1873·174	11 11½		
133	9 46	80 45	224·467	.....	25·13	.....	80·402	9 9		
134	9 49	85 27	270·000	.....	15·44	.....	71·224	8 8½	.....	Exactly on wire —270°.
135	9 49	87 10	.....	240	.....	10	71·224	11 11		
136	9 49	79 56	226·407	.....	13·41	.....	80·358	8 9		
137	9 49	54 23	47·067	.....	14·72	.....	73·204	9½ 11	Red	A third star forms a curve; distance, a little more than A to B.
138	10 2	55 2	.....	270 270	.....	4 6	81·256	9½ 10 10 11	.....	Triple. See diagram.
139	10 11	66 40	331·717	.....	2·75	.....	80·489	7 9	.....	First seen, 1880·344.
140	10 14	55 29	277·075	.....	2·88	.....	81·467	8 9		
141	10 15	66 28	37·067	.....	2·98	.....	80·344	8 9	.....	First seen, 1873·224; nearly as close as H. 4306; fine object.
142	10 18	64 40	354·083	.....	3·38	.....	80·495	8 11		
143	10 21	49 32	21·153	.....	17·27	.....	81·393	10 11		
144	10 21	49 32	.....	20	.....	17	81·393	10 11	.....	Follows almost in field with the last star.
145	10 21	47 23	264·920	.....	24·05	.....	80·325	9 11		
146	10 22	54 56	98·670	.....	11·62	.....	81·467	9 9		
147	10 23	58 7	.....	.....	.....	.....	80·344	6½ 0	.....	First seen, 1874·284. Three stars within 12s. in R.A. and almost exactly in a line when the wire bisects the first and second; the third is 0·5″ south of the line.
148	10 25	47 16	.....	275	.....	3	80·314	.....	.....	The star forms the angle of a right-angled triangle; position doubtful.
149	10 25	66 7	134·350	.....	4·20	.....	80·347	9 10	.....	Large star; bright red.
150	10 27	51 40	346·836	.....	1·87	.....	81·446	9 10		
151	10 27	68 20	191·733	.....	3·47	.....	80·443	8 10		
152	10 34	63 51	6·751	.....	3·02	.....	74·287	8½ 10		
153	10 35	58 13	70·417	.....	15·72	.....	71·481	.....	Yellow and blue.	
154	10 39	63 37	304·833	.....	3·60	.....	80·500	9 9	.....	First observed, 1880·391; position 306.417; distance, 2·04″; magnitude, 9½—10.
155 μ Argo..	10 40	48 48	5·4633	.....	2·81	.....	80·325	3 9	Pale yellow and pale green.	First seen, 1880·314.
156	10 41	58 40	208·983	.....	2·17	.....	76·144	10 10		

Sydney Observatory List of New Double Stars—*continued.*

No. and Name.	R.A.	Dec. S.	Position.		Distance.		Date of Obser-vations.	Mag.		Colours.	Remarks.
			Measured.	Estimated.	Measured.	Estimated.					
	h m	° ′	°	°	″	″					
157	10 43	65 24	55·378	.....	8·34	.....	1881·464	8½	11	11m. blue.	
158	10 44	49 13	251·473	.....	34·41	.....	81·456	9	9		
159	10 44	49 13	279·944	.....	43·06	.....	81·456	8½	9		
160	10 45	68 8	234·989	.....	7·00	.....	81·464	9	10		
161	10 45	56 38	256·033	.....	0·50	.....	74·188	7	8	.....	Four minutes following northerly part, Eta Argus cluster; fine double star; distance seems to be increasing.
			257·250	.....	0·72	.....	76·128	7	9		
			261·517	.....	0·85	.....	78 221	7	8		
			258·817	.....	1·15	.....	80·204	.....		Both yellow.	
			261·825	.....	1·20	.....	82·182	7	9	.....	When first seen thinnest wire covered from centre to centre; much wider now.
162	10 47	79 56	228·167	.....	10·63	.....	80·402	9	9		
163	10 50	58 27	55·217	.....	1·80	.....	79·287	8	8½	.....	R.A. of this star doubtful.
164	10 54	60 33	82·183	.....	4·52	.....	73·311	7	12	White.	
165	11 6	46 27	59·450	.....	3·15	.....	80·317	8	8	.....	First seen, 80·314.
166	11 8	54 51	212·539	 270	7·39	18	81·484	11	11 12	.....	Triple. See diagram.
167	11 10	47 21	98·535	.....	21·37	.....	79·440	11	11		
168	11 17	42 20	125·633	.....	3·20	.....	71·418	9	9		
169	11 17	54 41	.....	70	.....	12	81·495	10	12		
170	11 20	55 48	250·014	.....	15·49	.....	81·495	9	11	.....	Discovered and measured, 81·464; position, 248·808; distance, 14·04; magnitude, 9·10.
171	11 21	46 49	350·900	.....	2·72	.....	80·317	8	11		
172	11 24	55 21	105·570	.....	25·12	.....	81·495	9	9	.....	Discovered and measured, 79·454; position, 106·623; distance, 26·98; magnitude, 9·10.
173	11 31	46 21	149·820	.....	2·82	.....	81·467	9	10		
174	11 33	82 25	257·717	.....	4·38	.....	80·382	8	9	.....	First seen, 71·489.
175	11 35	60 24	15·363	.....	8·37	.....	82·150	9½	11	.....	In a cluster B. See diagram. Stars are not all shown? h 4475.
176	11 35	60 24	307·260	.....	3·03	.....	82·500	.....		.....	A in diagram.
177	11 28	46 35	157·567	.....	3·89	.....	80·325	8½	9	.....	First seen, 80·314.
178	11 40	42 40	162·453	.....	10·09	.....	80·454	9	10	.....	First seen, 71·415.
179	11 40	57 28	355·217	.....	5·07	.....	71·369	9	9	Yellow.	
180	11 41	52 22	180·733	.....	2·65	.....	73·256	9½	10		
181	11 52	70 45	108·400	.....	10·98	.....	80·382	10	10		
182	11 56	84 22	.....	.....	.....	15	71·358	11	11		
183	11 56	76 20	.....	.....	.....	12	71·358	10	11		

SYDNEY OBSERVATORY LIST of New Double Stars—*continued.*

No. and Name.	R.A.	Dec. S.	Position. Measured.	Position. Estimated.	Distance. Measured.	Distance. Estimated.	Date of Observations.	Mag.		Colours.	Remarks.
	h m	° ′	°	°	″	″					
184	11 56	71 35	209·491	.....	24·16	.....	1880·456	11	11	.....	First seen, 71·358; triple; distance, 12″e, nearly in a line.
185	11 59	61 10	62·000	.....	9·34	.....	80·402	10	10	.....	The preceding point of a small triangle.
186	11 59	61 20	147·900 19·167	.....	14·40 24·84	.....	80·402	7½ 7½	8 9	.....	Triple. See diagram.
187	12 0	60 35	231·800	.....	18·00	.....	80·426	9½	9½		
188	12 0	84 22	148·337	.....	24·43	.....	80·456	11	11		
189	12 0	89 14	223·055	.....	36·40	.....	80·456	11	12	.....	First seen, 71·358.
190	12 1	68 13	49·985	.....	10·78	.....	80·421	10	10	.....	First seen, 71,295; position, 60°e; distance, 15″e.
191	12 4	60 21	209·550	.....	3·87	.....	80·426	9	10	.....	First observed, 73·311; position, 212,350; distance, 4·33.
192	12 5	51 37	.....	90	.....	3	78·284	10	11		
193	12 6	35 25	168·650	.....	0·83	.....	81·541	8	8		
194	12 7	75 54	0·080	.....	13·87	.....	80·456	10	11	.....	First seen, 71·358; distance, 12″e.
195	12 8	60 21	307·583	.....	7·94	.....	80·426	10	11	}	In same field.
196	12 8	60 25	276·883	.....	8·95	.....	80·426	11	11½		
197	12 14	59 40	31·750	.....	6·03	.....	80·402	10	11		
198	12 15	51 35	50·868	.....	2·63	.....	80·432	9	10	.....	First seen, 78·284; position, 90°e; distance, 3″e; magnitudes, 10 and 11.
199	12 21	57 0	.....	280	.....	.....	80·380	11	12		
200	12 21	60 8	134·917	.....	2·99	.....	80·429	9	10	.....	First seen, 78·284.
201	12 23	61 11	270·467	.....	2·43	.....	80·382	9	10	Yellow	First seen, 78·284—the most northern of three stars nearly in a line, middle one 7 mag., orange, yellow, and white.
202	12 27	57 10	25·833	.....	21·04	.....	80·432	11	12	.....	First seen, 71·434.
203 β Muscae	12 31	40 13	180·614	.....	9·19	.....	81·511	9	11		
204	12 31	57 30	100·700	.....	18·00	.....	80·432	9½	9½		
205	12 32	57 36	271·940	.....	23·40	.....	81·511	11	11		
206	12 37	55 15	271·917	.....	18·58	.....	80·432	9	9		
207	12 38	67 17	317·267	.....	0·54	.....	80·344	4	4½	.....	First seen, 78·284; one of the closest doubles I know.
208	12 40	55 10	5·750	.....	3·64	.....	80·402	10	11	.....	First seen, 80·432. First observed, 80·440; position, 6°·033; distance, 3·64.
209	12 41	55 27	193·208	.....	1·58	.....	80·432	9	10	Light yellow	First seen, 78·278.
210	12 54	33 4	239·150	.....	5·83	.....	81·541	9	10		
211	12 59	59 20	.....	190	.....	.....	80·426	9	9	.....	First seen, 78·284.
212	12 59	61 3	109·400	.....	5·80	.....	74·456	10	10½	White.	

SYDNEY OBSERVATORY LIST of New Double Stars—*continued.*

No. and Name.	R.A.	Dec. S.	Position.		Distance.		Date of Observations.	Mag.		Colours.	Remarks.
			Measured.	Estimated.	Measured.	Estimated.					
	h m	° ′	°	°	″	″					
213	13 0	59 14	27·079	.....	0·88	.....	1874·270	8	8	Both orange.	
			19·256	.....	0·68	.....	80·344	8	8	.....	A very beautiful double star; both alike and orange coloured.
			25·750	.....	0·70	.....	80·426	8	8		
214	13 1	41 46	.....	45	.....	4″	81·514	11	11		
215	13 8	80 40	.....	.....	.....	.....	71·360	10	11		
216	13 8	56 29	129·250	.....	5·17	.....	80·440	8	10		
217	13 20	57 30	170·900	.....	3·88	.....	80·429	9½	9½	.....	First observed, 74·421; position, 169·983°; distance, 4·17″.
218	13 21	43 11	167·114	.....	3·84	.....	81·514	9	11		
219	13 22	73 37	23·933	.....	13·63	.....	80·380	9	12	.....	First seen, 71·451; position, 40e; distance, 8″e.
220	13 23	57 56	.....	210	.....	1″	78·284	.....		.....	Middle of a remarkable string of stars.
221	13 29	60 30	164·674		7·18	.....	80·415	11	11	.....	First seen, 71·434.
222	13 29	64 16	107·150		1·15	.....	79·522	9	9	.....	Found, 71·448; may be H 4596 if error of 50′, declination in Cape list.
223	13 31	57 57	.....	20	.....	.....	80·484	6	13		
224	13 31	63 26	212·650	.....	8·93	.....	80·440	10	10 10	.....	Triple. See diagram.
			336·417	.....	6·70	.....					
225	13 42	58 56	341·325	.....	9·12	.....	81·484	10	11		
226	13 45	73 16	133·767	.....	16·12	.....	80·418	9	9	.....	First seen, 71·432.
227	13 48	53 33	348·466	.....	1·08	.....	80·418	5	6	Both yellow.	First seen, 78·432. The most northerly of several stars; one yellow, another red.
228	13 50	55 48	346·364	.....	14·54	.....	81·568	9	11		
229	13 52	72 20	116·711	.....	6·80	.....	80·492	9	10	.....	First seen, 71·432; four wide pairs in field here.
230	13 53	61 48	154·100	.....	.....	.....	80·322	8	8 8	.....	Three 8 magnitude stars in a line; distance, A to B, 86″; B to C, 43″; when examined with power of 800 they seem in a straight line at times; the following one seems to be ¼ of a second on the following side of the line. First observed, 71·432; position, 154·100; taken as a test object for change.
231	13 53	66 43	160·000	.....	3·86	.....	80·492	9	9½		
232	13 53	66 34	175·681	.....	4·99	.....	80·492	9	9		

Sydney Observatory List of New Double Stars—*continued.*

No. and Name.	R.A.	Dec. S.	Position.		Distance.		Date of Observations.	Mag.		Colours.	Remarks.
			Measured.	Estimated.	Measured.	Estimated.					
	h m	° ′	°	°	″	″					
233	13 54	62 0	86·500	.....	14·18	.....	1880·493	10	11	.....	First seen, 71·432.
234	13 54	66 22	176·900	.....	6·15	.....	74·489	9½	9½		
235	13 54	74 50	271·491	.....	36·17	.....	80·508	10	10	.....	First seen, 71·432.
236	13 55	57 1	14·350	.....	13·78	.....	80·514	9	11	.....	First seen, 71·432.
237	13 55	57 0	66·750	.....	13·01	.. ...	80·514	9	11		
238	13 59	57 8	279·817	.....	19·95	.....	81·588	9	11	.....	In the field with h 4645.
239	13 59	57 8	311·483	.....	13·25	.....	81·588	9	10		
240	14 1	72 29	208·322	.....	32·92	.....	80·511	9	9		
241	14 2	72 29	110·103	.....	25·00	.....	80·511	10	11		
242	14 3	75 38	217·208	.....	7·84	.....	80·495	10	11		
243	14 14	79 36	123·983	.....	5·36	.....	80·355	9½	9		
244	14 15	47 47	125·325	.....	3·95	.....	81·533	8	11		11 mag. ; blue.
245	14 21	61 50	249·320	.....	21·22	.....	80·492	11	11	.....	Two pairs ; first seen, 71·443 ; distance, 2″ e and 15″ e.
246	14 21	61 50	.....	.....	.....	2	71·443	.....			
247	14 22	75 47	322·400	.....	.....	8	80·355	9	9½	.....	First seen, 71·443.
248	14 27	46 8	291·374	.....	5·50	.....	74·432	9	10	.....	Fine double.
249	14 28	62 3	33·633	.....	2·77	.....	81·601	8	10		
250	14 42	69 52	21·808	.....	40·55	.....	70·741	7	10	Red and blue.	
251	14 45	69 56	236·403	.....	26·78	.....	80·495	8	11		
252	14 46	69 56	260·891	.....	19·52	.....	80·495	11	11		
253	14 46	69 58	.....	330	.....	15	80·574	10	11		
254	14 46	69 58	.....	150	.....	4	80·574	10	11		
255	14 50	69 29	335·483	.....	5·65	.....	72·582	7	9		
256	14 54	71 42	42·080	.....	1·68	.....	80·519	7	9	.....	First seen, 72·517.
257	14 57	61 17	.....	35	.....	6	81·601	10	11	.....	In the same field.
258	14 57	61 17	.....	80	.....	2	81·601	11	11	.....	
259	15 6	55 19	338·788	.....	16·90	.....	79·577	9	10	.....	Power used, 159 ; measures 71·481; angle, 340·40 ; distance, 16·90.
260	15 25	60 7	334·903	.....	18·24	.....	80·533	11	12	.....	First seen, 72·566.
261	15 25	72 36	90·808	.....	7·58	.....	74·522	10	10		
262	15 26	80 10	271·110	.....	5·72	.....	74·522	10	10	.....	Found on the date measured. Measures again 80·519 ; angle, 273·889 ; distance, 6·45″.
263	15 27	63 8	.....	45	.....	12	72·566	10	11		
264	15 27	68 25	.....	210	.....	10	72·566	10	11	.....	Northern of three stars in line.
265	15 28	80 0	274·024	.....	4·70	.....	80·519	10	10	.....	Precedes h. 4787 about half a field.
266	15 32	79 16	.....	.....	.....	15	71·464	11	11	.....	In same field as h. 4787.

SYDNEY OBSERVATORY LIST of New Double Stars—*continued.*

No. and Name.	R.A.	Dec. S.	Position.		Distance.		Date of Observations.	Mag.		Colours.	Remarks.
			Measured.	Estimated.	Measured.	Estimated.					
	h m	° ′	°	°	″	″					
267	15 36	65 5	151·742	.....	2·79	.....	1880·426	7	7	.....	First observed, 71·579; position, 153·800; distance, 2·61.
268	15 47	65 21	158·067	.....	5·71	.....	81·549	9	9		
269	15 50	65 37	134·200	.....	2·43	.....	72 579	9	9½	.....	Second observation, 81·549; position, 131·317; 1·91″ distance.
270	15 53	57 26	59·833	.....	10·32	.....	80·533	10	11		
271	15 55	38 55	41·156	.....	5·61	.....	80·653	9	10		
272	16 3	53 50	162·617	.....	4·70	.....	71·585	9½	9⅔		
273	16 4	53 55	166·472	.....	10·41	.....	80·519	11	11½	.....	First seen, 71·585, 6s. following h. 4835.
274 δ Tri Aust	16 4	63 23	.....	140	.....	0·3	80·404	4	11		
ν Scorpii ..	16 8	19 9	257·050 1·750	.....	0·53 0·50	.....	78·270 78·538	4	9	.....	This is Burnham's close companion.
275	16 9	64 6	349·979	.....	4·53	.....	74·511	9½	10	.....	Fine double; second observation, 81·547; position, 352·591; 3·83″ distance.
276	16 15	63 43	.....	45	.....	7	71·527	12	12	.....	Two pairs in field with iota Tri. Aust.
277	16 15	63 43	.....	45	.....	15	71·527	11	13	.....	
278	16 16	63 45	19·700	.....	21·66	.....	80·432	7	10		
279	16 18	63 53	.....	270	.....	10	80·571	9	9		
280	16 20	65 0	37·767	.....	9·85	.....	80·432	9	9½		
281	16 25	61 28	123·383	.....	3·76	.....	80·404	9	10		
282	16 33	60 40	124·133	.....	3·80	.....	71·604	6½	7	Faint yellow	Very pretty double.
283	16 35	35 31	87·850	.....	0·42	.....	81·629	7	9		
284	16 38	67 23	25·467	.....	6·58	.....	73·615	9½	9½		
285	16 44	46 50	.....	135	.....	30	71·527	10	10	.....	Distance very uncertain; follows h. 4890.
286	16 48	37 0	318·382	.....	17·13	.....	81·629	8	11		
287	16 50	58 41	131·017	.....	3·06	.....	71·607	8	8		
288	16 53	48 46	55·600	.....	1·99	.....	81·659	10	11		
289	16 55	50 56	158·000	.....	.....	5	80·537	8	12	.....	New star in the pentagon, h. 4909.
290	17 0	52 15	155·060	.....	12·09	.....	80·574	9	10	.....	First seen, 73·514.
291	17 2	68 14	199·983	.....	3·42	.....	72·599	9½	11		
292	17 3	60 38	.....	170	.....	6	72·579	12	12		
293	17 3	68 0	.....	185	.....	6	72 579	9	11		
294	17 4	54 16	298·111	.....	14·11	.....	80·577	9	9	.....	First seen, 71·582.
295	17 4	60 50	.....	.....	.....	6	80·577	12	12 12	.....	See diagram.
			.....	250	.....	18					
296	17 6	38 7	138·817	.....	2·34	.....	80·757	7	10		
297	17 10	46 26	0·333	.....	3·66	.....	80·757	7	10		
298	17 11	34 51	224·383	.....	1·77	.....	77·643	7	9	.....	Large star of h. 4935.

SYDNEY OBSERVATORY LIST of New Double Stars—*continued.*

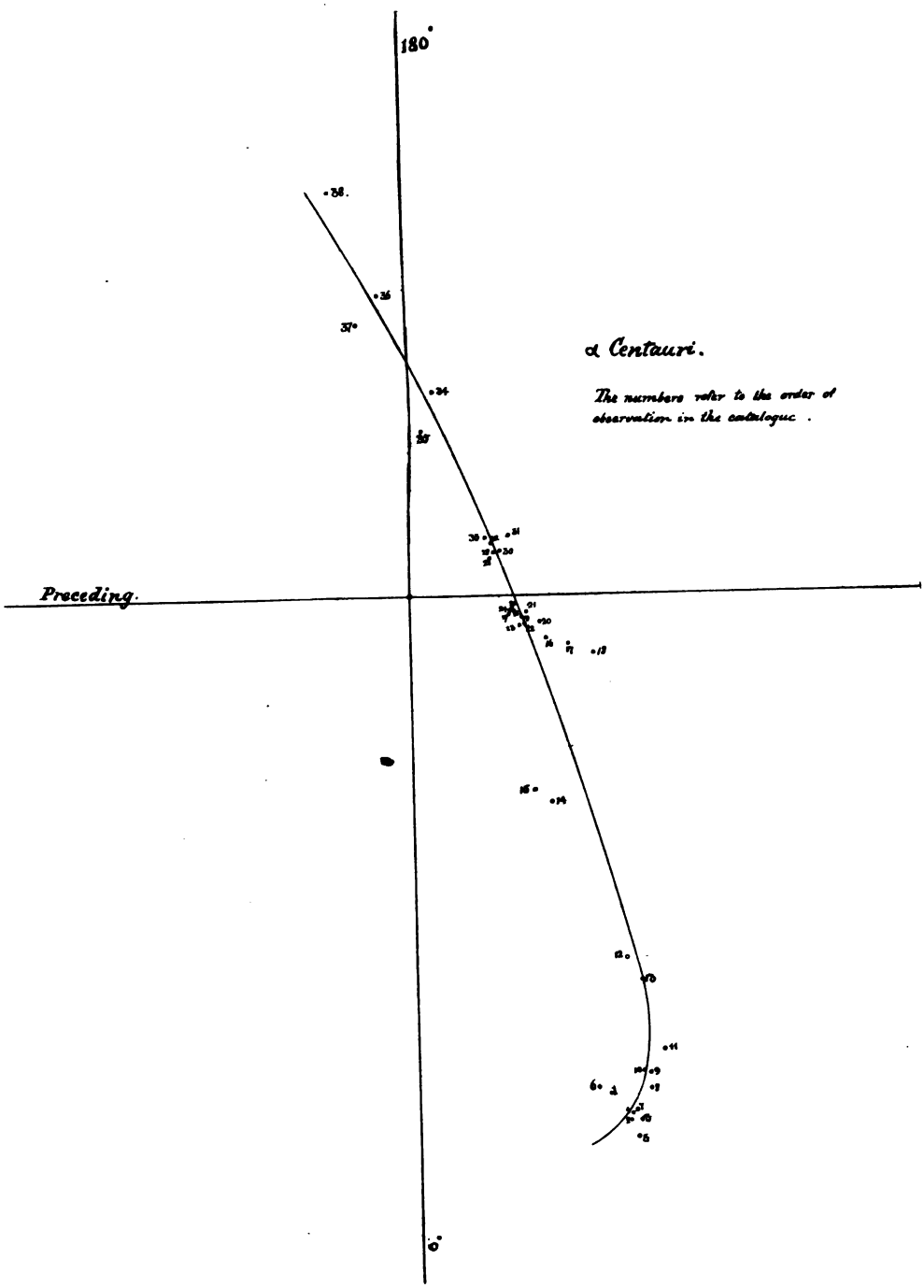
No. and Name.	R.A.	Dec. S.	Position. Measured.	Position. Estimated.	Distance. Measured.	Distance. Estimated.	Date of Observations.	Mag.		Colours.	Remarks.
	h m	° ′	°	°	″	″					
299	17 13	59 52	338·750	.....	11·52	.....	1880·593	10	11	.....	First seen, 73·467; magnitudes, 9·0.
300	17 14	58 57	349·600	.....	9·48	.....	73·473	9	11	.....	First seen, 72·473.
301	17 15	75 36	.....	170	.....	12	72·473	10	12		
302	17 25	81 50	72·150	.....	10·68	.....	73·538	9	9	.....	First observed, 72·579; position, 72·917; distance, 10·40.
303	17 35	53 6	109·664	.....	2·54	.....	80·566	7	9		
304	17 48	55 23	82·500	.....	2·72	.....	80·651	9	10	.....	First seen, 80·577.
305	17 49	78 58	121·050	.....	9·45	.....	72·509	9½	9½		
306	17 50	35 55	14·817	.....	2·59	.....	80·766	8	10		
307	18 7	35 35	355·673	.....	1·71	.....	80·766	9	10	.....	Position. Distance. First observation 73·612..295·233..5·02 Second* ,, 78·799..288·717..3·79† Third ,, 81·547..295·987..4·91 Fifth ,, 81·549 295·767..5·02 Sixth ,, 81·549 296·400..5·01 * Third in list. † Made at Woodford.
308	18 21	66 22	295·150	.....	4·21	.....	79·519	8	10	Yellow & blue	
309	18 32	55 57	216·916	.....	3·21	.....	71·541	7	9		
310	18 32	50 49	16·750	.....	32·58	.....	71·541	6	10	.....	Nearly in same field with preceding pair.
311	18 32	83 47	117·817	.....	9·80	.....	71·667	9	9½		
312	18 33	47 46	329·164	.....	15·53	.....	80·596	9	10		
313	18 36	50 32	.....	45	.....	40	80·596	7	10		
314	18 36	73 4	260·283	.....	1·02	.....	80·796	6	10		
315	18 37	47 45	.....	.....	.....	12	71·588	9	10		
316	18 44	67 42	.....	120	.....	40	71·604	11	11		
317	18 54	45 49	287·267	.....	1·00	.....	81·716	9	10	.....	Large star of h. 5078.
318	18 55	67 15	.....	160	.....	8	80·604	11	12		
319	19 32	73 14	54·400	.....	3·56	.....	71·615	9	10		
320	19 33	66 20	.....	180	.....	20	80·612	9	9½		
321	20 19	37 47	97·050	.....	1·07	.....	80·859	7	9		
322	20 27	75 49	17·024	.....	17·96	.....	71·667	7	8	Yellow.	
323	20 31	63 8	321·564	.....	2·72	.....	80·612	9	10	.....	First seen, 73·689.
324	20 31	85 10	.....	40	.....	10	80·604	9	11 11	.....	Triple; near a red star. See diagram.
				45	.....	14					
325	20 42	56 53	109·617	.....	9·20	.....	73·785	9½	9½	Faint blue ..	A tenth mag. star; precedes 14 seconds and 5″ north.
326	20 43	40 9	.....	300	.....	12	80·837	8	12		
327	20 55	55 50	211·617	.....	12·95	.....	73·694	9½	10		

Sydney Observatory List of New Double Stars—*continued.*

No. and Name.	R.A.	Dec. S.	Position.		Distance.		Date of Observations.	Mag.		Colours.	Remarks.
			Measured.	Estimated.	Measured.	Estimated.					
	h m	° ′	°	°	″	″					
328	21 10	60 45	.....	110	.....	14	1880·604	10	10	.....	In the field with h. 5256.
329	21 10	60 36	115·700	.....	20·50	.....	70·736	9	9	.....	Precedes h. 5256 by 65s. and 5′ farther south.
330	21 11	67 26	2·017	.....	5·62	.....	70·736	9	12		
331	21 19	55 44	109·717	.....	31·45	.....	80·615	8½	8	.....	First seen, 71·744.
332	21 20	60 47	333·725	.....	14·40	.....	80·615	10	11	.....	First seen, 71·744.
333	21 22	86 24	30·008	.....	6·07	.....	73·705	8	8		
334	21 28	83 20	112·167	.....	2·82	.....	78·790	9	10	Blue and white	
335	21 35	61 25	.....	130	.....	.....	73·799	11	11		
336	28 42	85 22	.....	145	.....	12	73·799	11	11	.....	Precedes h. 5292 about 30s.
337	21 49	88 50	.....	.....	.....	10	70·801	12	12		
338	21 52	89 0	.....	200	.....	10	71·289	10	10	.....	Very faint.
339	22 35	65 20	248·767	.....	11·14	.....	73·785	9	10	.....	The northern of two stars.
340	22 52	77 51	.....	120	.....	12	70·801	13	14		
341	23 1	72 38	.....	70 60	....	12 20	70·856	11	12 14		Triple.
342	23 1	84 53	.....	.....	.....	15	70·856	11	14		
343	23 11	58 51	337·069	.....	15·58	.....	80·875	8	10	.....	A third magnitude star north preceding.
344	23 17	54 25	211·164	.....	25·75	.....	80·941	7	8		
345	23 25	81 42	.....	.....	.....	12	70·870	11	11	.....	Verified 80·746; estimated angle, 110e.
346	23 25	79 20	.....	140	.....	20	70·870	10	10		
347	23 31	65 44	.....	.....	.....	30	73·785	7	10	Yellow	
348	23 33	69 45	350·283	.....	4·16	.....	70·870	8	9	Greenish yellow.	
349	8 46	64 55	.....	130	.....	5	82·274	8	12	Blue.	
350	9 13	57 51	.....	270	.....	6	82·290	9	10	.....	About a dozen doubles near this.

TABLE showing Day and Fraction of the year.

January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
day.	frac.	day.	frac.	day.	frac.	day.	frac.	day.	frac.	day.	frac.	day.	frac.	day.	frac.	day.	frac.	day.	frac.	day.	frac.	day.	frac.
1	·000	1	·085	1	·162	1	·246	1	·329	1	·413	1	·496	1	·580	1	·665	1	·747	1	·832	1	·915
2	·003	2	·088	2	·164	2	·249	2	·331	2	·416	2	·498	2	·583	2	·668	2	·750	2	·835	2	·917
3	·006	3	·090	3	·167	3	·252	3	·334	3	·419	3	·501	3	·586	3	·671	3	·753	3	·838	3	·920
4	·008	4	·093	4	·170	4	·255	4	·337	4	·422	4	·504	4	·589	4	·674	4	·756	4	·841	4	·923
5	·011	5	·096	5	·173	5	·257	5	·340	5	·424	5	·507	5	·591	5	·676	5	·758	5	·843	5	·925
6	·014	6	·099	6	·175	6	·260	6	·342	6	·427	6	·509	6	·594	6	·679	6	·761	6	·846	6	·928
7	·016	7	·101	7	·178	7	·263	7	·345	7	·430	7	·512	7	·597	7	·682	7	·764	7	·849	7	·931
8	·019	8	·104	8	·181	8	·266	8	·348	8	·433	8	·515	8	·600	8	·685	8	·767	8	·852	8	·934
9	·022	9	·107	9	·183	9	·268	9	·350	9	·435	9	·518	9	·602	9	·687	9	·769	9	·854	9	·936
10	·025	10	·110	10	·186	10	·271	10	·353	10	·438	10	·520	10	·605	10	·690	10	·772	10	·857	10	·939
11	·027	11	·112	11	·189	11	·274	11	·356	11	·441	11	·523	11	·608	11	·693	11	·775	11	·860	11	·942
12	·030	12	·115	12	·192	12	·277	12	·359	12	·444	12	·526	12	·611	12	·695	12	·778	12	·862	12	·945
13	·033	13	·118	13	·194	13	·279	13	·361	13	·446	13	·528	13	·613	13	·698	13	·780	13	·865	13	·947
14	·036	14	·121	14	·197	14	·282	14	·364	14	·449	14	·531	14	·616	14	·701	14	·783	14	·868	14	·950
15	·038	15	·123	15	·200	15	·285	15	·367	15	·452	15	·534	15	·619	15	·704	15	·786	15	·871	15	·953
16	·041	16	·126	16	·203	16	·288	16	·370	16	·455	16	·537	16	·622	16	·706	16	·789	16	·873	16	·956
17	·044	17	·129	17	·205	17	·290	17	·372	17	·457	17	·539	17	·624	17	·709	17	·791	17	·876	17	·958
18	·047	18	·131	18	·208	18	·293	18	·375	18	·460	18	·542	18	·627	18	·712	18	·794	18	·879	18	·961
19	·049	19	·134	19	·211	19	·296	19	·378	19	·463	19	·545	19	·630	19	·715	19	·797	19	·882	19	·964
20	·052	20	·137	20	·214	20	·298	20	·381	20	·465	20	·548	20	·633	20	·717	20	·800	20	·884	20	·967
21	·055	21	·140	21	·216	21	·301	21	·383	21	·468	21	·550	21	·635	21	·720	21	·802	21	·887	21	·969
22	·058	22	·142	22	·219	22	·304	22	·386	22	·471	22	·553	22	·638	22	·723	22	·805	22	·890	22	·972
23	·060	23	·145	23	·222	23	·307	23	·389	23	·474	23	·556	23	·641	23	·726	23	·808	23	·893	23	·975
24	·063	24	·148	24	·225	24	·309	24	·392	24	·476	24	·559	24	·643	24	·728	24	·810	24	·895	24	·977
25	·066	25	·151	25	·227	25	·312	25	·394	25	·479	25	·561	25	·646	25	·731	25	·813	25	·898	25	·980
26	·068	26	·153	26	·230	26	·315	26	·397	26	·482	26	·564	26	·649	26	·734	26	·816	26	·901	26	·983
27	·071	27	·156	27	·233	27	·318	27	·400	27	·485	27	·567	27	·652	27	·737	27	·819	27	·904	27	·986
28	·074	28	·159	28	·236	28	·320	28	·403	28	·487	28	·570	28	·654	28	·739	28	·821	28	·906	28	·988
29	·077	..	....	29	·238	29	·323	29	·405	29	·490	29	·572	29	·657	29	·742	29	·824	29	·909	29	·991
30	·079	..	....	30	·241	30	·326	30	·408	30	·493	30	·575	30	·660	30	·745	30	·827	30	·912	30	·994
31	·082	..	....	31	·244	..	....	31	·411	..	....	31	·578	31	·663	..	....	31	·830	..	....	31	·997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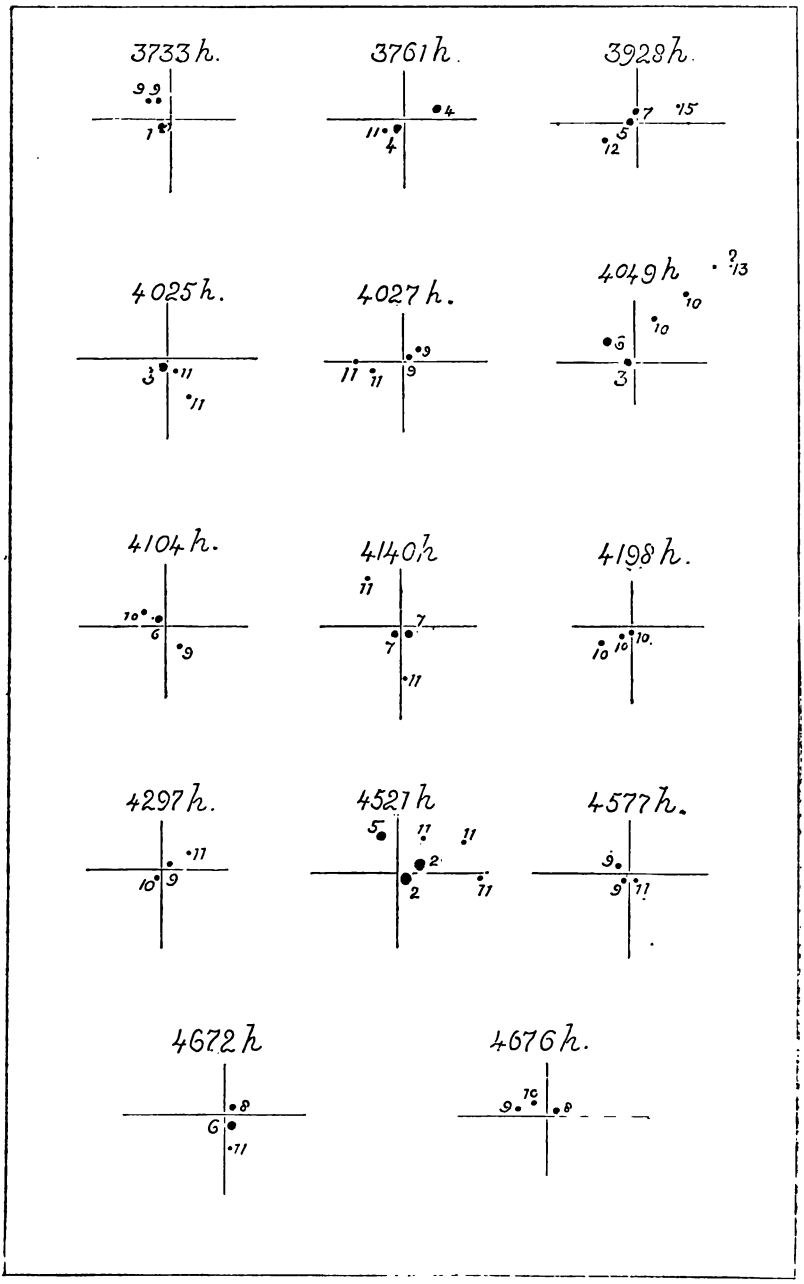
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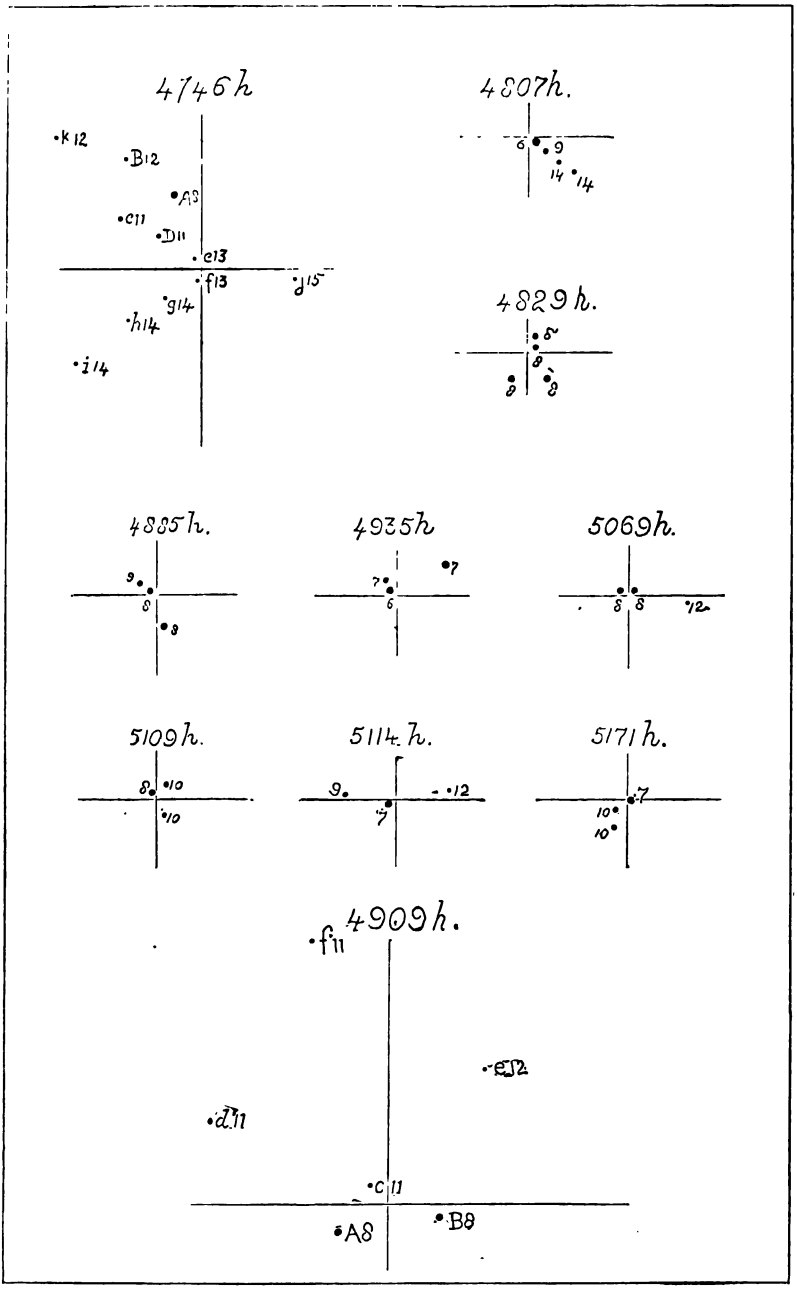
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D11
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14
4829h.
8
8
8
8
4885h.
9
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8
4935h
7
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6
7
5069h.
8
8
12
5109h.
8
10
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f11
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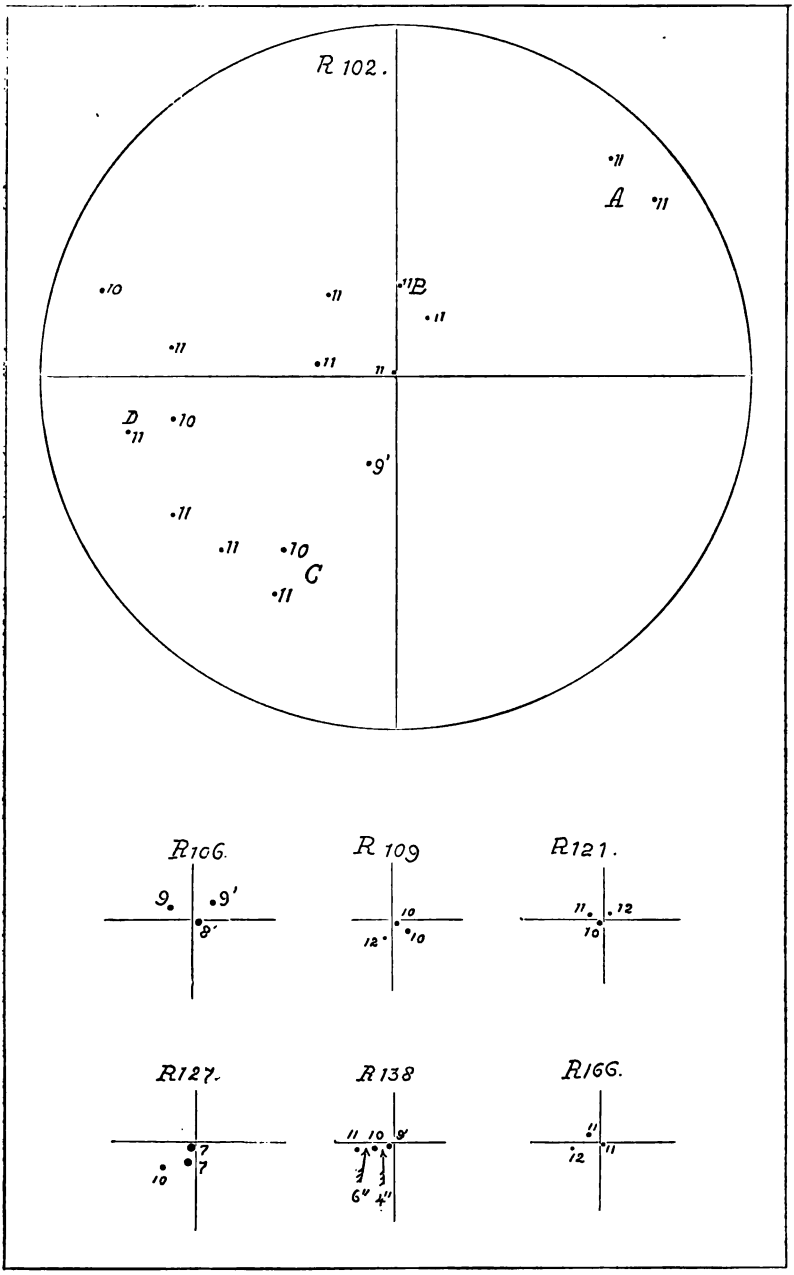
d11
c11
A8
B8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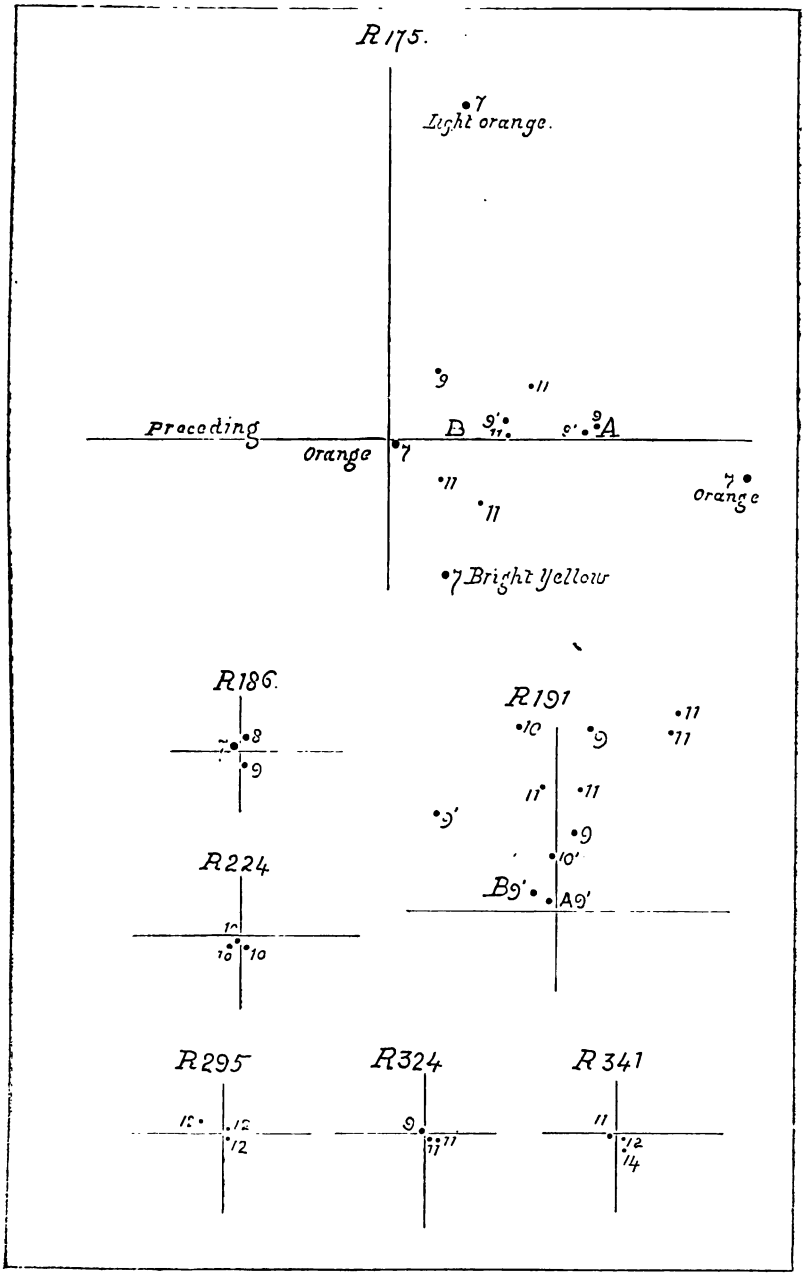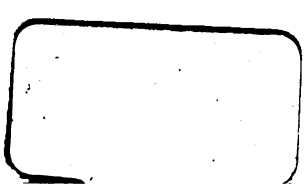
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9
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Orange
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R 186.
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R 224
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R 295
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